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News Print Cut Creates Involved Situation

Further Important Developments Anticipated, Due to Fact That Lower Prices Will Entail Decreased Earnings—Various High Priced Mills May Have to Close Down, Thus Concentrating Production to Plants Where Costs Can Be Kept to Minimum—Decline Not Expected to Have Any Immediate Effect On Consumption

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., April 26, 1931.—That further important developments in the news print industry will follow the price reduction for news print by $5 per ton is taken here for granted, but nothing has yet occurred beyond warnings by news print executives that the cut to $50 per ton f.o.b. mill will entail decreased earnings. There is no expectation that the cut will have any immediate effect on consumption, but what is expected is that various high-priced mills will have to close down, thus concentrating production in plants where costs can be kept to a minimum.

This would have been done to a greater extent long ago had purely selfish interests prevailed, for neither operators nor governments have been indifferent to the fact that closing down mills would work hardship on local workers and bring ruin to municipalities entirely dependent on the industry. The necessity for the reduction in price is regretted, for it brings into relief the fact that only Canada's greatest resources, namely timber, is now being manufactured into a product that is being sold without profit to foreign consumers.

Exactly how much the industry will lose if the $5 cut applies to all production is hard to estimate. Last year Canada's exports of news print amounted to 2,331,011 tons, upon which an official valuation was put of $133,280,932, or somewhat better than $55 per ton, the price for contract lots. Assuming the tonnage to be approximately the same, there would be a cut in revenue from exports under the new price of some $11,000,000. But it is to be doubted whether the actual amount received will show such a drop if the tonnage is maintained, for it is open secret that the $55 price has not been strictly maintained, various mills having made contracts on an individual basis in the matter of price. Therefore the cut may look bigger on the surface than it will actually be in fact.

New Industry to Help Pulp Mills

A new industry, entirely a Canadian development, is being established in Canada that promises to be of importance to the pulp and paper industry. This is the production of sulphuric acid from iron pyrites by the Freeman flesh roaster. Hitherto the industry has had to import sulphur from Texas. No expense is involved in the burning of pyrite, as it forms its own combustion.

Eastern Canada, particularly Quebec, is well supplied with pyrite. Aldermac Mines already has decided to construct a 500-ton daily capacity concentrator to mine its ore and provide constant and reliable source of supply of pyrite. Pyrite production from the Eustis mine in Quebec, which has a daily capacity of approximately 110 tons of pyrite concentrates, has been contracted for. In the past the pyrite from the Eustis mine has been going to the United States, providing a source of supply for the production of sulphuric acid, particulary in the Eastern area. The successful application of the process has been in use for some time, at the Cap de la Madeleine plant of the Canada Power and Paper Company.

The Nichols Copper Company, of the United States, has acquired through a subsidiary the right to market the burner in the United States.

Maclaren Project Advances

The Maclaren—Quebec Company, which is concerned in a power and news print project on the Lievre River in Quebec, the news print mill already being in operation, is proceeding with further power developments according to schedule. Some 350 to 400 men are now employed on the several phases of this undertaking and the working force will be substantially increased when preliminary operations have been completed.

At Masson, the river has a fall of 185 feet over a succession of rapids and falls. Most of this fall can be utilized by means of the diversion dam now under construction and a tunnel approximately one mile long cut through solid rock. The power house will be built at the downstream end of the tunnel.

Some idea of the magnitude of this operation can be gained from the fact that the pressure tunnel will have a diameter of approximately 25 feet. The tunnel will be driven through solid rock and the walls lined with concrete.

The Masson Falls development will have an installed capacity of 130,000 electrical horsepower, and a long-term contract has been completed with the Ontario Hydro-Electric Power Commission for the delivery of 125,000 horsepower, the first block to be delivered by July 1, 1933, with increasing quantities each year, the full amount to be taken by November 1, 1936.

Paper Mill Activities In Fox River Valley

Newly Organized Tomahawk Power & Pulp Co., Well Under Way, With Plenty of Orders Ahead—Badger Paper Mills, of Peshtigo, Wis., Earned Net Profit of $89,189 During 1930 First Dividend Declared on Preferred Stock Since 1929

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 27, 1931—With plenty of orders on hand to run for some time, the newly organized Tomahawk Power and Pulp Company is getting nicely under way. This concern, managed by Frank Theiler, Mayor of Tomahawk, Wis., took over what is known as the King pulp mill, formerly owned by the Tomahawk Pulp and Paper Company, of Tomahawk. Sufficient water power is available to operate two of the grinders. The company is buying a great deal of its peeled spruce direct from farmers in the vicinity as a means of helping out a great many who were affected by the business depression. Reorganization of the Tomahawk Pulp and Paper Company has not been completed, and the paper mill is still idle.

For the first time since it was organized in 1929, the Badger Paper Mills, Inc., Peshtigo, Wis., has declared a dividend. The stockholders holding $50 par preferred, of which there are approximately 14,300 shares outstanding, will receive 1½ per cent for the first quarter of 1931, equal to 6 per cent, or $3 a share annually. The shares were sold on a basis which made them non-cumulative until February 1, 1931.

Because of the able management of E. A. Meyers, president, and the favorable reception of the company's products in the market, the company showed a net profit of $89,189 for the year 1930 and is in a good cash position. The earned surplus is $121,379.

Pulpwood for Muskegon Mill

Pine logs in the yards of the Falls Manufacturing Company, Oconto Falls, Wis., are being peeled and shipped to another of the International Power and Paper Company's mill as Muskegon, Mich. By this method, the company is giving employment to some of the men laid off when the Falls mill was closed down about a year ago. The pine is being removed because of its age and the possibility of loss from rotting.

A maintenance crew is keeping the mill in condition for the resumption of operations, according to Frank Cota, mill manager, and production could be resumed on ten days' notice. No announcement has been made as to when work will be resumed. There is pulpwood on hand, mostly hemlock, for a nine months' run.

Annual Forestry Budget

One million dollars will be asked of the Wisconsin legislature for the annual forestry budget, according to plans announced by William Mauthe, chairman of the state conservation commission. This is the largest amount ever requested but is desired so the state can do its share in the preservation of pulpwood and timber supplies. Expenditure of approximately $415,000 for fire protection is contemplated. The commission also plans to acquire tax delinquent lands and devote them to reforestation.

Use of prison labor in the planting of trees is contemplated by the state board of control. Methods used by the Nekoosa-Edwards Paper Company in its vast commercial forestry project have been studied by the board, and its ideas will be utilized by the state.

Further serious timber losses resulted during the last week from a new outbreak of forest fires in Northern Wisconsin. Rains finally came to the rescue of fire fighters and stopped the progress of the flames. A training camp is being held this week at the Marquette National Forest, near Newberry, Mich., where twenty forest rangers, under the direction of E. W. Tinker, regional federal forester, will be drilled in the use of modern equipment provided for the suppression of fires. All other forestry employees of Wisconsin, Michigan and Minnesota will be invited. All types of equipment are maintained at the Marquette Forest, where fires have been successfully checked by their use.

Consolidated to Maintain Wage Scale

Wages of the Consolidated Water Power and Paper Company's four mills will be maintained at their present scale for another year, following a two-day conference at the main offices at Wisconsin Rapids, Wis., between the company and officials of various labor unions. The company has signed an agreement with the union for the next year, according to C. E. Jackson, general mill manager. Only a few minor technical changes were made in the agreement. The company has employed union labor for many years.

News of the Industry

Dr. Harry F. Lewis, a member of the staff of the Institute of Paper Chemistry at Lawrence College, Appleton, Wis., has been appointed dean of students, according to announcement of Dr. Henry Merritt Wriston, president of the college. He will have charge of the admission of students to the institute, as well as to organize their academic problems and supervise their work. Dr. Lewis received this appointment in recognition of his work. He will continue his teaching of research work. Dr. Lewis has held professorships in Ohio Wesleyan University, the University of Maine, and Cornell and Grinnell Colleges. He was also research chemist for the National Analine Chemical Company of Buffalo.

Employes of the Northern Paper Mills, Green Bay, Wis., will be permitted to vote on the adoption of a daylight saving schedule for the months of May, June, July and August. If adopted, the mill schedules will be set ahead one hour.

All four mills of the Consolidated Water Power and Paper Company operated during the month of March without a lost time accident and the employees now have not less than two months to their credit for safe operation. The Interlake mill at Appleton, Wis., continues its record-breaking pace, having nearly fifteen months to its credit. There has not been a lost time accident since February 16, 1930. The Stevens Point mill has been perfect since August 3, 1930, the Biron mill since January 10, 1931, and the main mill at Wisconsin Rapids since February 23, 1931. High praise was given these records by Stanton W. Mead, production manager.

Announcement is made of the marriage of Miss Helen Everest, eldest daughter of D. Clark Everest, vice-president and general manager of the Marathon Paper Mills Company. She was married last week to Charles Gordon Gilly, of Big Stone Gap, Va. The couple will reside at Laurel, Miss.

Demand for Paper Expanding in Philadelphia

Distributors of Standard Grades Anticipate Steady Gain Throughout Season, Culminating With Broader Request In Late Summer and Early Autumn—Pennsylvania Paper Mills Continue to Maintain Five Day to Full Week Schedule of Operation.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., April 26, 1931.—Slowly but steadily the Philadelphia paper market is gaining in volume of business. This steady gain is a factor for a more optimistic outlook for the future and distributors are hopeful that it will continue throughout the remainder of the season. While the trade looks for less activity in the summer months, it is forecasted that late summer and early autumn will be more in line with expectations for broader demand for all grades of paper needed for the Fall revival of industrial activity. Consumers are not heavily stocked and have followed a course of buying from hand to mouth as needs dictate, rather than in providing for future requirements, so that the way is paved for an advance later in the year.

With the resumption of forty or more hosiery mills after a prolonged labor dispute extending for almost a year, there has been a greater demand for paper used by this prominent local industry and for converted products, such as boxes and wraps in glassines and other grades. Wrapping papers are in broader demand, with growing orders of the hand to mouth type.

Mills continue to maintain a five day to full week schedule of operation and this production scale is expected to be maintained throughout the coming month. Fine papers have been more lively among the distributors, though sales are of small type, and frequent shipments involve higher overhead in handling and small profits because of keen competition. Wholesalers and mill representatives report steady demand for tonnage orders holding on parity with those of March. Broader demand for coated papers has been noticed recently with bulkier book grades the leaders. The paper stock market drags along listlessly with a few of the better grades, such as ledgers, writing and book papers, moving in fair volume.

Outing for Paper and Twine Merchants

Announcing that the members of the Paper and Cordage Association of Philadelphia will hold their annual outing and golf tournament on June 25, President William Edkin, of the Keystone Cordage Company, turned the session of the association held last Friday over to Colonel George Hicks of the Philadelphia Chamber of Commerce and the Philadelphia Business Progress Association. The talk given by Colonel Hicks was most interesting and the members enthused over the industrial educational advantages of Philadelphia which were outlined in his treatise on the Port of Philadelphia and its shipping facilities. He rounded out his survey of the city industries with statistics and gave details of the paper and twine business, showing its basic valuation linked with all other industrial enterprises. He invited the members to inspect the records of the paper and twines industries and others of the Quaker City filed with the Business Progress Association and Chamber of Commerce, with a view to becoming better informed on business affiliations which might be gained through such information. One of the important factors stressed by Colonel Hicks was that of keeping the Paper and Cordage Association a small group with selective membership in order to obtain best results in business policies and welfare of the trade represented.

President Edkins, as chairman of the entertainment committee, will be in position to announce the place for the golf tournament and outing at the May meeting, to be held at the Adelphia Hotel. N. N. Newell, who is in charge of arrangements, has returned from a trip to Florida, and with President Edkins will co-operate in arranging the program.

Paper Men Join In Direct Mail Meeting

Members of the Philadelphia Paper Trade Association and Direct Mail Advertising Association, united with the educators of the Wharton School of Finance at the University of Pennsylvania in discussing direct mail advertising, its allied industries of printing and paper making and the exhibits at Irvine Auditorium, last Wednesday. The meeting, held in the evening, was jointly sponsored by the Wharton School, the Educational Committee of the Direct Mail Advertising Association, Direct Mail Committee of the Poor Richard Club, Drexel Institute and Temple University, several hundred students from these institutions attending. George W. Ward, president of the D. L. Ward Paper Company, was chairman of the joint gathering and introduced Dean Emory Johnson, of Wharton School, who called the meeting, and gave a direct mail talk covering its practical side from the making and preparing of copy, layout, designing, printing and use of papers, and went into statistics of the use of direct mail matter as surveyed by the Direct Mail Advertising Association in this country. Dean Johnson then gave a talk on direct mail matter, while Dr. Herbert W. Hess head of the Merchandising Department of the Wharton School, also spoke on this topic. Homer J. Buckley and Benjamin Sweetland, members of the Board of Governors of the Direct Mail Advertising Association, spoke on different phases of advertising. An exhibit of fifty pieces of direct mail advertising campaigns of outstanding merit assembled by Mr. Ward, who is chairman of the Poor Richard Direct Mail Committee, were on exhibition.

Hooper Paper & Twine Co.'s 10th Anniversary

Attainment of the tenth Anniversary was an occasion for uniting of officials and staff of the Hooper Paper and Twine Company, at the festive board in a dinner-bridge party held at the Adelphia Hotel on Thursday of last week. With President and Treasurer George K. Hooper, Vice President E. F. Hooper and Secretary Edwin V. Rementer extending the hospitality of the firm the sixteen guests rallied at the dinner table and after partaking of the good things joined the dancing program, vaudeville entertainment, and the game of bridge which capped the evening's program. There were several prize awards made to the sales staff in memory of years of service and attention to promotion of the firm's interests. The Hooper company began business at 145 South Front street, where it remained for five years and then removed to 270 South American street, and a year ago to its present larger home at 105 Church street, where a five-story warehouse and sales office is maintained. Originally a twine and paper house catering to volume of business, the firm in recent times has branched into the fine paper division.

Paper Demand Improves Slightly in Chicago

Higher Grades of Fine Paper, Including Book and Cover Papers, Exhibit More Buoyancy—Board Paper Market Outlook More Favorable Than of Late—Kraft Paper Situation Practically Unchanged—Chaotic Position of News Print Industry

CHICAGO, Ill., April 25, 1931—Mutterings and rumblings concerning the reported cut in news print prices are all that the Chicago market has yet heard about it, according to several representatives of news print firms. That a rather chaotic condition exists seems to be the opinion of many but nobody is doing anything here but marking time and hoping for the best. The uncertain condition, naturally, is not doing the market any great amount of good. Otherwise the Chicago paper market gave a rather good account of itself in the week just passed. The kraft market continued to thrive on careful watching and no extraordinary price changes have been reported. Stability and ability to give the group a chance to work out its own problem is reported to be the tonic this market needs.

A cross section of the market indicates soundness of opinion rather than bullishness. Nobody looks for any market to run away with itself. However, inquiries are picking up, genuine orders are resulting from orders placed some time ago and the tendency is toward normalcy at least. Books and covers shared in the continued slight improvement with the higher grades of fine papers. The board market is slowly righting itself and its ability to hold its own ground is regarded as rather favorable here. Glassines were said to be still rather weak. The waste paper market continued about the same as last week with no very important changes noted.

Paper Salesmen's Meetings

Members of the Middle West Division of the Salesmens Association of the Paper Industry are planning quite a meeting for May 4, when they will put on an open program, at which a few guests will be invited to hear Mr. Hunt, advertising manager of the Champion Coated Paper Company, talk on book paper and book paper manufacturing, and to witness a moving picture showing Champion's mills at Hamilton, Ohio. The noon meeting will be held, as usual, at the Hamilton Club. Harold Knott, president of the association, is confident that this meeting, with Mr. Hunt's talk and the movies as the highlights, will be one of the largest to be held this year.

On Monday, April 27, the salesmen will have the privilege of hearing Al Redfield, of the Munising Paper Company, talk on the products of his company, bonds, in the regular series of programs put on by members.

On April 22, Charles Forster, now acting independently as a manufacturers representative with offices in the Merchandise Mart, gave an interesting discussion on box board and board in general. He talked about the manufacturing of the products, discussed new developments, their relative importance, talked about the trend in the board market and, in general, gave the salesmen a real picture of the board market today. He accompanied his talk by submitting for inspection samples of all grades of board. Twenty-five salesmen, an unusually good turn out, enjoyed the discussion.

Fred Whitely, western sales manager of the Aetna Paper Company, Howard Paper Company, and Maxwell Paper Company, made quite a hit at the Monday, April 13, meeting of the association. Mr. Whitely, appearing on the regular series of discussions by members, gave an interesting informal discussion of the products of the three organizations he represents—bonds, ledgers and offsets particularly. Mr. Whitely produced samples of his paper, submitting mailing pieces used in the merchandising of the products, gave a detailed account of the products of each of the mills and added some interesting discussion on the selling policies of the companies he represents in this territory. A very good crowd took advantage of the opportunity to hear Mr. Whitely's remarks.

Big News Print Cargo Arrives

With a cargo of 2,458,000 pounds of news print in its hold, the steamer *New York News* of the *Chicago Tribune* fleet, won an 800 mile race through the great lakes from Thorold, Ontario, against the specially designed motor ship *Thorold*. The *New York News* docked at the Chicago warehouse just nine and one half hours ahead of the *Thorold*, unloaded its cargo and returned to Montreal. From Montreal the ship is to proceed to Shelter Bay, northeast of Quebec, where the *Tribune's* timberlands are located. The *News* will be used to carry pulpwood from that point to the Thorold mill through the summer. The *Thorold*, which has a capacity of about 3,000 tons, will be used to convey rolls of paper from the mill to Chicago. Her first 1931 cargo was unloaded April 19 and she is now on the return trip to the Thorold mill.

News of the Trade

Two unusually interesting direct mail pieces, one advertising Oxford Dull Coated and the other Peacock Folding Enamel, were received in Chicago advertising and printing offices this week. The former carried a bit of copy on "distinction" with a Black, Starr and Frost engraving to set it off. "Standardize on Oxford Papers" was the theme of the copy. The Peacock Folding Enamel piece featured a neat four color job with a splendid black and white illustration on the inside cover. Fine printing quality, excellent folding quality and strength are listed as characteristic of the paper. It is made in high finish and dull finish and in white, ivory and india.

George K. Gibson, of the Mosinee Paper Mills, is justly proud of a new Mosinee booklet, "Mosinee Cellusuede," which describes Cellusuede, which looks and feels like real suede leather. The booklet contains swatches of ten colors in which the paper is made. Mr. Gibson is getting requests for a number of copies of the booklet at his offices in Tribune Tower.

Courtney H. Reeves, Chicago representative of the Allied Paper Mills, has a new product for the spring season in Allied Colorcraft, a new distinctive book paper in twelve colors, suitable for inexpensive booklets, folders and announcements. The colors are Blue Granite, Zenith, Jade, Peacock Green, French Blue, Seafoam, Lemon, Canary, Oriole, Canyon Red, Crab Apple and Tan.

Charles Forster has recently opened offices in the Merchandise Mart, where he is acting as an independent mill representative for this territory. He was, until recently, on the sales staff of the Container Corporation of America,

and has had many years of experience in the sale of his particular product.

Paul Frey has recently joined the sales force of the Ridge Paper Company, 330 South Wells street, Chicago, distributors of a complete line of duplicating supplies, stencils, paper, etc.

Westvaco Inspirations for Printers, Number 64, is certainly complete with a riot of colors in keeping with the season. The popular West Virginia Pulp and Paper Company mouthpiece contains a series of four-color process half tone engravings that are of unusual beauty. Some excellent black and white effects are carried on Clear Spring English Finish, India Tint. A little discussion on "Making the Most of Two Colors" is a prominent and well illustrated feature. "Adapting the Appeal to the Product" is still another effective discussion, while the final two pages, with copy on "Frames and Backgrounds in Black" make a fitting ending for a splendid piece of advertising work.

News of the Pacific Coast Mills

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., April 25, 1931.—The Grays Harbor Pulp & Paper Company, Hoquiam, Wash., is now operating on a 24-hour three shift basis with 100 per cent capacity except with an occasional shutdown for a day or so, according to Lyall Tracy, assistant manager.

The Longview Fibre Company, Longview, Wash., is building a storage warehouse next to the box factory for their overflow of raw material.

Completion of the new pulp mill which is being constructed at Longview, Wash., by the Weyerhauser Timber Company is now set for July according to Herman Kuppler of Chris Kupplers Sons, contractors in charge of the work.

The Rainier Pulp and Paper Company which resumed operations at Shelton, Wash., recently after the prolonged closing of the plant due to water pollution litigation, is now constructing a three-mile pipe line to Goose lake through which waste liquor will be diverted instead of being dumped in Puget Sound.

Ossian Anderson, president of the Puget Sound Pulp and Timber Company, Everett, Wash., has been nominated to fill a vacancy on the board of trustees of the Manufacturers' Association of Washington.

Review Rules of Business Practice

WASHINGTON, D. C., April 20, 1931—The Federal Trade Commission has announced its completion of the task of reviewing the rules of business practice adopted by close to eighty industries at trade practice conferences held at various times, mostly in the last five years.

The rules for each industry will be announced separately in the near future after each industry has been given an opportunity to adopt changes made by the Commission.

While details will not be made known until the statements concerning each industry are released for publication it may be said that the Group II rules which relate to expressions of the trade, are being generally retained in the language of the industries although there are some changes suggested by the Commission. Group II rules relate to practices and methods in doing business that the industry believes are opposed to economic principles or to fairness, or ethics, or good morals, although such practices or methods are not required by law. Rules concernng practices regarded as unfair methods contrary to law are placed in Group I.

The Commission will dispose of the rules, adopted at the remaining Conferences as soon as convenient.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 27, 1931.—Roger D. Smith, president of the S. D. Warren Company, recently stated that announcements of considerable importance would be made at an early date. A series of conferences between executives in the sales, research, and mill divisions of the company has been held.

At the annual meeting of the Hollingsworth & Whitney Company the following were elected officers of the company: M. Lester Madden, president; Walter B. Merlin, vice-president, and Robert Nivison a director. The other officers were re-elected. The new high pressure steam plant of the company at Winslow, Me., is in full operation.

The May meeting of the New England Paper Merchants Association is to be held on the 19th at Worcester, probably at one of the golf clubs. The committee is composed of Graham Blandy and Walter Butler.

Messrs. Campbell and Harwood, representatives of the Reynolds Metals Company, of Louisville, Ky., spoke at the regular sales meeting of Carter Rice & Co. Corp. at the office of the latter company Saturday morning, giving the line up of their unifoil covers. The foil is pasted on to paper bags and is used also for box covers, envelope linings and all types of direct mail pieces. Carter Rice & Co. are to distribute sample books.

Fire caused damage of about $10,000 in a rear storeroom of the plant of the James J. Graham Paper Company 25-29 Otis street, Cambridge, late Tuesday afternoon. A considerable weight of mixed shavings was stored there. There was no damage to other stock of the company and the fire did not interfere with deliveries on contracts. Carleton P. Graham, son of James J. Graham, head of the firm, and Frank Costa, an employe, were taken to the Cambridge relief station, suffering from inhalation of gas, caused by the fire.

Pratt & Austin Manufacturing Company, Inc., Springfield, Mass., has been incorporated to manufacture paper, card board and paper board. There are 100 shares, $100 each. President, F. Raymond Austin; vice-president, Clary N. Pratt; treasurer, Leonard C. Pratt, 128 Fountain street, Springfield.

Stone & Forsyth Company has awarded a contract to the American Moistening Company, Providence, R. I., for an entensive humidifying system throughout their Kingston street warehouse.

F. Bendel Tracy, secretary of the Boston Paper Trade Association, is the proud father of a daughter, Marion Eleanor, weighing nine pounds, born at the Richardson House, Longwood avenue. Mr. and Mrs. Tracy are receiving congratulations.

Alfred L. Gooch, vice-president of Stimpson & Co., who has been at the New England Sanitarium, Melrose, since the latter part of December, is recovering from cerebrospinal meningitis and expects to leave there May 3.

N. S. Clark, president of Knight, Allen & Clark, Inc., is having a very successful fishing trip in Maine. He is accompanied by his family.

Ed. Norton, secretary of C. H. Norton Company, North Westchester, Conn., called on the trade last week.

To Break Ground for Priest River Mill

A press dispatch from Priest River, Idaho says: "C. W. Beardmore is in New York closing the deal for the million dollar pulp mill to be built in Priest River. According to reports, ground is to be broken for the new mill about June 1 and the first unit completed this summer. Plans include other departments in connection with the pulp mill.

Fine Paper Manufacturers Active in Ontario

Satisfactory Demand Experienced for Writing, Ledger and Coated Paper Stock—Book Paper Mills Quite Busy, With Some Orders Ahead of Machines—Board Plants Operating at 65 Per Cent Capacity—Paper Box Industry Gradually Improving

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., April 27, 1931—With the advance of Spring, the wholesale paper trade is gradually loosening up, although the process is slow. There is still a disposition on the part of the paper consumer to buy cautiously and this is reflected in small lot purchases. The fact remains, however, that consumption of fine papers is increasing to some extent, and while the market is by no means back to normal, there are signs that an era or larger sales and turnover is on the way. The testimony of most of the paper merchants is that considering the protracted business depression, their own business is keeping up quite well. There is quite a good demand for most lines of fine papers and if sales can be kept up as well as they are being maintained now, through general trade depression, it is argued that really good business will develop when normal conditions return within the next few months. Paper buyers are not so insistent now as they were in regard to the cheaper grades of paper and both high and low grade papers are sharing in the improved demand. On the other hand, coarse papers are experiencing a somewhat draggy market still. Both wrapping paper and paper bags are in light demand and are not likely to show any great improvement until trade conditions generally improve throughout the country.

Aside from the news print situation, mill activities are on a fairly satisfactory basis in most divisions of the industry. Book paper mills are quite busy and have some orders ahead of the machines. Fine paper plants generally are more active than they have been for some time under a good demand for writing, ledger, book and coated stock. The coating mills report slightly increased operations and tonnages are now proving fairly satisfactory. Board mills are operating around 65 per cent capacity and the paper box industry is showing signs of improvement, although as yet their requisitions for board are comparatively light. Business with the converting trade is still light and envelope manufacturers are none too busy. Glassine and grease proof mills are operating lightly but light weight papers in the line of tissues are in good demand.

Firstbook Boxes Earns $102,225 Net

Operating profits of Firstbook Boxes, Ltd., in 1930, totalled $102,225 before depreciation and bond interest, compared with $170,165 in 1929, according to the company's financial statement now going forward from the office in Toronto. In his statement to the shareholders, accompanying the fiancial report, E. Victor Donaldson, who is also president and general manager of the Robert Gair Company, New York, states:

"Your management has been quick to realize that curtailed buying makes reduction in operating expenses imperative. They are giving unsparingly of their time and energy to effect economies in all divisions of the firm's activities. The co-operative spirit is everywhere apparent. Your company's position in the industry is established and enhanced by the quality of its products and the fact that it meets practically all the requirements of the packaging merchandiser. Close attention is being given to research and development work, for undoubtedly proper packages are destined to play even a greater and more important part in the distribution of merchandise. In that direction lies our hope of future profits, and by reason of sincere effort, our contacts, and conservation of our resources at this time, we should be in a position to benefit promptly when conditions improve."

Assets of the company stand at $1,666,938, of which $546,341 consists of current assets, compared with current liabilities of $319,279. The principal item among current assets is the sum of $406,865 under the heading of inventory, merchandise and supplies.

Progress in Pulp and Paper Industry

While the Canadian pulp and paper industry undoubtedly feels the present economic depression, it is in a better position than ever to contribute towards the world's requirements of pulp, news print and other paper, according to a report on the industry just released by the Dominion Government, in which it is shown that the industry established new high records in 1929 in the production of pulp, news print and other lines of paper, not only in quantity, but in total value, despite a decline in average prices. Further progress was being made toward the more complete utilization in Canada of natural resources of pulpwood. While the annual exportation of pulpwood from Canada to the United States of over a million cords of raw or unmanufactured pulpwood and the production in Canadian paper mills of a preponderance of comparatively cheap news print constitute a theoretical economic loss, the industry as a whole showed a strong tendency toward the more profitable manufacture of raw materials within the country. This is clearly indicated by the increased purchases of pulpwood by Canadian mills, the increasing production of pulp in Canada, the decreasing exportations of pulp for further manufacture in other countries, the increase in the proportion of pulp retained in Canada for further manufacture into paper in Canadian paper mills and the increases in production, the sale in Canada and the exportation of Canadian paper. In the addition of value to raw materials by further manufacture, the pulp and paper industry is the most important manufacturing industry in Canada today, the report says. It heads the list in gross and net value of production as well as in wage and salary distribution. It comes second in capital investment and total number of employees. Canada now manufactures 37 per cent of the world's supply of news print paper, exceeding in 1929 the production of the United States by over 1,300,000 tons. Canada's exports of the commodity are almost ten times as great as those of Germany, next in importance, and exceed the reports of the rest of the world combined.

Notes and Jottings of the Trade

Frank A. McDougall, district forester at Sault Ste. Marie, Ont., has been appointed superintendent of Algonquin Provincial Park, succeeding the late J. A. McDonald. Mr. McDonald, who is a graduate of the University of Toronto, will have charge of timber, pulpwood and aviation control in the area.

Damages of $16,000 are awarded to Francis L. Towle, Wausau, Wis., pulpwood merchant, against the Russell Timber Company, Ltd., Port Arthur, Ont., in a judgment handed down at Osgoods Hall a few days ago. The claim of the plaintiff against the United States Fidelity and Guaranty Company, of Maryland, was dismissed.

Contract for the erection of a $25,000 addition to the plant of Card and Paper Works, Ltd., 146 Sherbrooke street, Peterboro, Ont., has been let and work is proceeding. Plans call for two stories, basement, 50 by 85 feet, with boiler room at the rear. L. A. Turner is president of owner company.

Charles Conquergood, secretary of the Canada Printing Ink Company, Ltd., addressed a gathering of members of the Canadian Paper Box Manufacturers Association on "Color" at the company's plant, following which the process of ink manufacture was viewed.

Niel Powter, of the Toronto office of the Howard Smith Paper Mills, has returned to Toronto after a speaking tour during which he addressed gatherings of Printing House Craftsmen at Ottawa and Montreal.

C. V. Hodder, Toronto, secretary of the Canadian Paper Box Manufacturers' Association, has had prepared and mailed out to the membership, an artistic circular, profusely illustrated, and descriptive of the arrangements made for the annual convention of the organization to be held at Bigwin Inn, Lake of Bays, on June 26 and 27.

C. S. Clark, formerly superintendent of the Dominion Paper Box Company, Ltd., Toronto, has taken over the management of the British Canadian Publishing Company, manufacturers of greeting cards and other paper specialties at 51-53 Wellington street West, Toronto. Mr. Clark is widely known in paper box and paper circles generally and prior to having charge of the Dominion Paper Box production was with the F. N. Burt Company, the parent company to Dominion.

The Ontario Pulp and Paper Makers' Safety Association recently presented its case before the Royal Commission investigating proposed changes in the Workmen's Compensation Act. A memorandum was presented to the commission with a view to lower assessment to firms with a consistently good accident prevention record, and to bring under the Act sub-contractors in the woods with fewer than six men, and piece workers in the woods.

W. J. Moroney, assistant purchasing agent of the Ontario Paper Company, Ltd., Thorold, Ont., recently visited Cochrane, where he made an inspection of the company's timber limits in that district.

Fred Halls, of the Fred W. Halls Paper Company, Ltd., Toronto, and Mrs. Halls, have returned from several weeks spent in Bermuda.

Charles L. Burton, president of the Robert Simpson Company, Ltd., Toronto and Montreal, has been elected a director of the Howard Smith Paper Mills in succession to the late C. Howard Smith. The Simpson company are large department store operators throughout Canada.

Offering is being made in British Columbia of an issue of $100,000 6½ per cent first mortgage bonds of National Paper Box Company, Ltd. The company was formed in 1923 to manufacture paper boxes and containers of all kinds and operates a plant in Vancouver. It also controls a majority interest in the Victoria Paper Box Co.

H. R. Telfer and Joseph Ward, of the Detroit Sulphite Company, Detroit, were business visitors in Toronto recently.

Charles Taylor, of the Alliance Paper Mill sales staff in Toronto, was the recipient of many good wishes a few days ago on the occasion of his marriage to Miss Cooper, a popular young lady of Oakville near Toronto, where the couple will reside following a motor trip through the Southern states.

At a mass meeting of citizens in Sudbury on April 23 to discuss the unemployment problem, some of the speakers believed that the Abitibi Power and Paper Company should be induced to operate its mill at Espanola, near Sudbury, but W. J. Bell, president of the Spanish River Timber Company pointed out that it would cost $10 a ton more to make paper at the Espanola mill than the price of paper today.

Boston Paper Market Fairly Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 27, 1931—Business generally has improved slightly in the paper market, although with the majority the demand is hardly more than moderate. The bulk, if not all, of the business is being placed in small, hand-to-mouth orders. Some of the wholesalers of fine paper say the demand, while improving as a whole, is still spasmodic. In some cases, at least, buyers placing orders in the latter part of a month ask for delivery to be postponed until the early part of the following month. Boston paper merchants are working on new price lists, to be issued early in May.

The wrapping paper market continues fair, with prices firm. Reports vary, some finding business rather quiet, others slightly better and still others a general increase. At least some specialties are moving well, such as seasonal material, as mulch paper used in vegetable gardens and flower gardens when the seeds are planted. The demand for glassine has improved somewhat.

The box board market averages fair, although in some instances it is stated that there is only just about enough business to keep going. Material for shoe boxes is in moderate demand, more than for board for candy boxes. Values remain at the same levels.

Paper stock remains dull as a whole. There is some call for the higher grades of paper-making rags, but sellers are not securing any higher prices. A few changes have been made in quotations, but there has not been a great deal of fluctuation. On f.o.b. Boston basis, solid ledger books are quotable at 1.75 to 2.00, compared with a former range of 1.75 to 2.25. Mixed ledgers are a bit lower, with a range of .75 to .90, compared with a previous one of .80 to 1.00. Some dealers are quoting mixed ledgers on narrower limits, such as .80 to .85.

Domestic gunny bagging is now quoted in a range of 1.60 to 1.70, compared with a flat price of 1.60, previously quoted. Foreign manila rope has declined from 2.25 to 2.00. Jute rope is a bit stronger at 1.25, against 1.05, formerly quoted. In new domestic rags, blue overalls are quotable at .05 to .06, compared with a former range of .06¼ to .06¾. There is little or no market for foreign dark cottons and linsey garments and prices for these commodities are nominal. The twine market is reported as strong, with a considerable demand for sisal, including Java, and hard fibers. Prices have been advancing.

Howard Smith Calendar Out

Howard Smith Paper Mills, Ltd., has just issued its annual calendar, which covers from May, 1931 to April, 1932, inclusive. The accompanying series of pictures illustrates the most interesting and characteristic types of Canada's wild animals, reproduced from the originals painted especially for the Howard Smith Paper Mills by Major Allan Brooks, the well-known Canadian artist.

Glazed and Fancy Paper Problems Discussed

Following plans for closer co-operation of the glazed and fancy paper manufacturers with the paper box manufacturing industry, a meeting of the Glazed and Fancy Paper Committee of the National Paper Box Manufacturers Association, with headquarters in the Liberty Title and Trust Building, Philadelphia, was held in Springfield, Mass., on April 16, at the Kimball Hotel. Those on the Glazed and Fancy Paper Committee were:—John Shuart, Springfield Glazed Paper Company, Springfield, Mass. chairman; R. M. Fowler, Hampden Glazed Paper and Card Company, Holyoke, Mass.; and E. J. Regnier, of the Nashua Gummed and Coated Paper Company, Nashua, N. H. The chairman of the Paper Box Association Committee was Joseph H. Perry, Cambridge Paper Box Company, Cambridge, Mass. Howard P. Beckett, commissioner of the National Paper Box Manufacturers Association, presided at the meeting. The box paper supply distributors were represented by Charles Matthias, of the Matthias Paper Corporation of Philadelphia.

The following standardization of the glazed and fancy paper manufacturers practices in business were adopted:—

(1) The final adoption of 5x8 inches as standard size for sample books.

(2) The adoption of 20x26 inches (500 sheets) as the basic ream for price lists and quotations.

(3) The adoption of the general practice of winding papers coated side out.

The agenda for the Conference Committee Meeting and the adoption of the standardization rules was as follows:—

Orders

"Orders received are frequently not specific enough. Considerable time and correspondence has to be expended which delays production and without which there is grave danger of manufacturing papers which will not prove satisfactory. The following suggestions are given as needed specifications for all orders: (a) Rolls or sheets? (b) Size desired? (c) Trimmed or untrimmed? (d) Exact color? (e) Proposed use of the paper, a good sized sample, or specified body stock? (f) Is the paper to be used for printing? (g) Fading qualities required? It is impossible to duplicate a paper from a tiny sample, a piece torn from a box, or a piece already pasted or glued.

Inquiries

"Requests for prices need to be just as specific for orders otherwise it may be finally discovered that the paper really desired and later ordered is different from the paper on which prices were quoted. There is a decidedly unfair practice being used by the paper purchaser which causes considerable ill feeling between the paper manufacturer and his customer. Cooperation is needed to banish this. The paper manufacturer is asked to quote on a fairly large quantity of paper. Later he receives an order for a much smaller quantity at the quoted price or an order for the larger quantity to be delivered in small lots. The box manufacturer says he got the order for boxes on the basis of the original quotation and therefore he expects the paper supplier to protect him with his price. Small quantity production is very much more expensive in the manufacture of box covering papers.

Substitution

"It has come to our knowledge that sometimes sample paper boxes have been made up from samples furnished by a paper supplier and an order for boxes received as a result of this sample. The paper box manufacturer has told his customer that he can supply the paper in a different design at a lower price. He has obtained these power prices from other paper suppliers than the one that furnished the sample from which the box was made. In other words, the box has been sold from the sample box using a certain paper and then a cheaper paper is substituted. Sampling is a very expensive service as is well known to all of us. The above practice is essentially unfair and probably could be prosecuted under the Federal Trade Laws.

Use of a Proper Adhesive

"Paste should not be strongly alkaline. Strong solutions of silicate of soda tend to discolor certain shades. This is often mistaken for abnormal color fading. This can easily spoil large quantities of paper and the blame is placed upon the paper manufacturer regardless of the fact that he is in no way at fault. If the box manufacturer has been using a certain paste or gum and decides to change to a different type of adhesive, he should carefully experiment with this new adhesive on papers he intends to use. This will prevent any large amount of spoilage.

Body Stock Standards

"The paper box manufacturer at our last meeting to study their needs with a view to adopting some standard requirements. We have heard nothing since then about this. We recommend 24-pound paper as a minimum weight for use on S. & S. machines. It is frequently possible to use 22-pound paper but if it so happens that the paper is embossed, the 22-pound paper is found to be too light to carry the strain.

Bureau of Standards

"We have taken up the matter of establishing standards regarding certain qualities; for example, fading, tensile strength, color variations, and tarnishing, with the Bureau of Standards at Washington. They have done no work along this line in the past for these particular papers. The wall paper industry had a similar problem which they assisted them in solving. Their suggestion is that a representative from the bureau meet with our joint committees in order to discuss these problems of trade standards. Acceptance of their plan of cooperation includes a preliminary survey, a preliminary conference, technical review, general conference and adoption by the industry, written acceptances, and publication after signed acceptances from at least 65 per cent of the production or consumption are received. The question is, do we want to consider their proposition and if acceptable go ahead with a standardization conference?

Color Variations

"We, the paper manufacturers, admit that our industry as a whole must work to decrease color variations by means of improved coating procedures, paper inspection, etc. The point of difficulty is that this improvement costs money and requires higher prices for our products. We need to know whether or not the box manufacturer is willing to pay these higher prices to get paper which will have the least possible variation of color.

Embossing

"Some members have reported ways in which they are decreasing variations of embossing depth. The use of two different embossing rolls, one of shallow depth and one of greater depth for use of different papers reported. Embossing rolls are also being chromium plated, which decreases their wear and makes more uniform embossing.

The embossing rolls sometimes are ré.engraved more frequently than normally in order to control this. All of these remedies increase the production expenses and thereby tend to increase sales prices. Is there any way that the paper box manufacturers can be educated to the fact that it is not entirely the pattern that controls the price of paper but it is also the quality of embossing.

Rejects

"The rejection of a shipment of paper by a box manufacturer causes far reaching trouble in addition to a lot of expense. The paper is very apt to become a job lot and dumped into the market as such. It is then bought by some one and can easily result in consumer buying the job-lot paper boxes and killing a possible sale of good quality boxes. Before rejection is decided upon great care should be exercised. It is not sufficient test to tear off a piece of the first roll that is handy to be used as a testing sample.

Sales Promotion

"So far we have talked largely about technicalities. What both industries most need in an increase in the use of our products. Cellophane, plastics, glass containers, etc., are getting our field. We need to work together to develop new uses for set-up boxes. This is, of course, largely a problem for the set-up paper box industry because it is in a strategic position to develop new packing ideas. The paper manufacturers' job is to make the papers desired to carry out these ideas and also to discover new uses for fancy papers in addition to set up paper-boxes."

Superintendents Meet at Mobile

MOBILE, Ala., April 19, 1931—M. C. Donald, of Monroe, La., was elected president of the American Pulp and Paper Mill Superintendents Association, Southern division, and Monroe was selected as the next convention city of the association at the final session Saturday night.

Other officers elected are J. L. Richardson, Tuscaloosa, first vice president; C. L. Crain, Panama City, second vice president; S. M. Dodge, Moss Point, Miss., third vice president; J. M. Murray, Bogalusa, La., fourth vice president; Albert Rosyskie, Camden, Ark., fifth vice president; J. E. Whitfield, Monroe, La., secretary-treasurer.

The meting Saturday night which took the form of a banquet concluded a two-day session of the association, the first session having been held Friday morning.

At the day sessions papers on various phases of the paper mill industry were read by members of the association and by visitors from other sections of the country.

V. K. Kellogg Sails for England

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., April 27, 1931—It was learned this week that V. K. Kellogg, a director of the Bagley & Sewall Co., has sailed for his home in London, Eng., after spending some time in this country. For the past several months he has been in Northern New York attending to business affairs and now plans to take a well-earned rest with his family in England. It is understood that he will return here in the near future although the exact time has not yet been determined.

Swedish News Print Production

[FROM OUR REGULAR CORRESPONDENT]

Washington, D. C., April 29, 1931—Swedish news print mills report for February an output of 15,252 metric tons as against 14,736 tons during the preceding month and 20,680 tons during February of last year.

New York Trade Jottings

The E. M. Sergeant Company, general paper and pulp merchants, formerly of 501 Fifth Avenue, announce the removal of their offices to the new Empire State building.

* * *

Lutz Paper Company, formerly of 17 East 42nd street, have removed to the store at 238 East 44th street. At this address, they have larger quarters, as they have combined their offices, stock rooms and factory, and have also installed equipment for manufacturing open end envelopes.

* * *

J. W. Boyle, who resigned his position some time ago with the Alliance Paper Mills, Toronto, Ont., Canada., has accepted a position with the Atlantic Gummed Paper Corporation, Brooklyn, N. Y. Mr. Boyle's experience in gummed and coated paper will be an asset to the new company.

* * *

Conrow Brothers, general paper merchants, formerly of 114 Worth street, have removed to new and larger quarters at 64 Wooster street, where improved delivery facilities are available and more items will be stocked. Henry B. Thurston is president of the company; Charles H. Baldwin is vice-president, and Charles H. Leissler is secretary.

* * *

Summerfield Eney, Jr., of the Champion Paper Company, was guest at a surprise luncheon at the Printing Crafts Club, on Wednesday, April 22. He was welcomed by about fifty of his friends and was presented with a birthday cake, made of tissue paper and decorated with four harmonicas, an instrument upon which he is a talented performer.

* * *

More than 175 New York business organizations, representative of the leading export and import interests of the country, thus far have registered for the National Foreign Trade Convention to be held here May 27, 28 and 29. Among the paper organizations already registered are: The American Paper and Pulp Association, Hinde & Dauche Paper Company, Union Bag and Paper Corporation, and Kalamazoo Vegetable Parchment Company.

* * *

Lily-Tulip Cup Corporation reports for quarter ended March 31, 1931, net profit of $164,658 after charges and taxes, equivalent after preferred dividend requirements, to 79 cents a share on 189,500 shares of no-par common stock. This compares with $146,625, or 77 cents a share, on 183,000 common shares in first quarter of 1930. Henry Nias, president, stated that sales for the quarter were approximately the same as for the initial quarter of 1930. "The present indications," he continued, "favor a continued demand for our diversified products and we look forward with confidence to a satisfactory volume of business. Our factories are running on full time schedules. Inventories are normal, and we anticipate a continuance of full time operations."

To Close Elkton Plant

A press dispatch from Elkton says that "Douglas J. Ayerst, superintendent of the Radnor Pulp Works here, owned by the Jessup & Moore Paper Company, of Wilmington and Philadelphia has posted notices throughout the plant to the effect that it will close down indefinitely on Friday May 1.

"The plant has been in almost continuous operation for the last thirty years, giving employment to nearly three hundred men. The cost of production, compared with some other sections where the raw material is at hand and does not have to be shipped is said to be the principal reason for the closing down of the mill."

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Philadelphia, Pa.—In connection with an expansion program now under way at its plant, the Paper Manufacturers Company, Fifth and Callowhill streets, has awarded general contract to E. E. Hollenback, Inc., 1910 North Marshall street, for extensions and improvements in an existing building, recently acquired. Work will be placed under way at once.

East Cambridge, Mass.—The James J. Graham Paper Company, East Cambridge, is planning improvements and repairs to plant at 25-29 Otis Street, recently damaged by fire, with loss reported at $10,000.

Cornwall, N. Y.—The Salisbury Paper Products Corporation, Cornwall, recently organized with a capital of $150,000, is said to be arranging to take over mill property at Salisbury Mills, Orange County, and will operate a plant at that place for line of paper goods. The new organization is headed by Laurence A. Barry, Jr., and William H. Malone, both of Salisbury Mills; and William H. Mahoney, 14 Van Reypen street, Jersey City, N. J.

New Orleans, La.—The Hortman-Salmen Company, Inc., New Orleans, is having plans drawn by J. C. DeArmas, 109 North Roberts street, engineer, for the proposed new local paper bag manufacturing plant, to be occupied under lease by the Bates Valve Bag Company, 60 East Forty-second street, New York, a subsidiary of the St. Regis Paper Company. The new unit will be one-story, 100 x 240 feet, located on the Jefferson Davis Parkway, and will cost over $100,000. It is expected to place superstructure under way at an early date.

Chicago, Ill.—Bradner, Smith & Company, 333 South Des Plaines street, have acquired an adjoining four-story building, 30 x 150 feet, which has been previously held under lease, and are said to be arranging an expansion program for increased storage and distributing facilities for paper goods.

New York, N. Y.—Box Novelties, Inc., care of Max Markowitz, 567 Schenck avenue, Brooklyn, recently organized with a capital of $10,000, is said to be planning the early operation of a local plant for the manufacture of paper boxes and containers.

Watertown, N. Y.—The Beebe Island Corporation, headed by George S. Knowlton, head of Knowlton Brothers, operating a local paper mill, has plans in progress for the construction of a new power plant with capacity of about 10,000 horsepower, and will place work under way at an early date. The project is estimated to cost over $400,000, with generating and other power equipment. The unit will be used for paper mill and other industrial plant service in this section.

Laurel, Miss.—The Masonite Corporation, Laurel, manufacturer of insulating board products, etc., is arranging for the construction of a new addition to its local mill, and has awarded a contract for structural steel to the Ingalls Iron Works, 720 Fourth avenue, South, Birmingham, Ala. The new unit is reported to cost over $45,000, with equipment. Headquarters of company are at 111 West Washington street, Chicago, Ill.

Corinth, N. Y.—The International Paper Company, Corinth, is said to be planning the early rebuilding of one of the buildings at its local Hudson River Mills, recently destroyed by fire with loss reported at close to $100,000 including equipment. A portion of the sulphur tower at the mill was destroyed. Headquarters of company are at 220 East 42nd street, New York.

Kingsport, Tenn.—The Holliston Mills of Tennessee, Inc., affiliated with the Holliston Mills, Inc., Norwood, Mass., operating textile mills, are giving over a portion of their local plant to the production of cotton writing papers for business and social service. The output is a heavy white stock, designated as "Cotton Bond," and is being produced in sizeable quantities to utilize the surplus cotton on this district. It is proposed to continue the production for an indefinite period.

South Wheeling, W. Va.—The No-Leak Paper Dish Company, manufacturer of paper cups, dishes, etc., has arranged for a lease of two floors of its mill to the Loose-Wiles Biscuit Company, Pittsburgh, Pa., which it will use for another line of service.

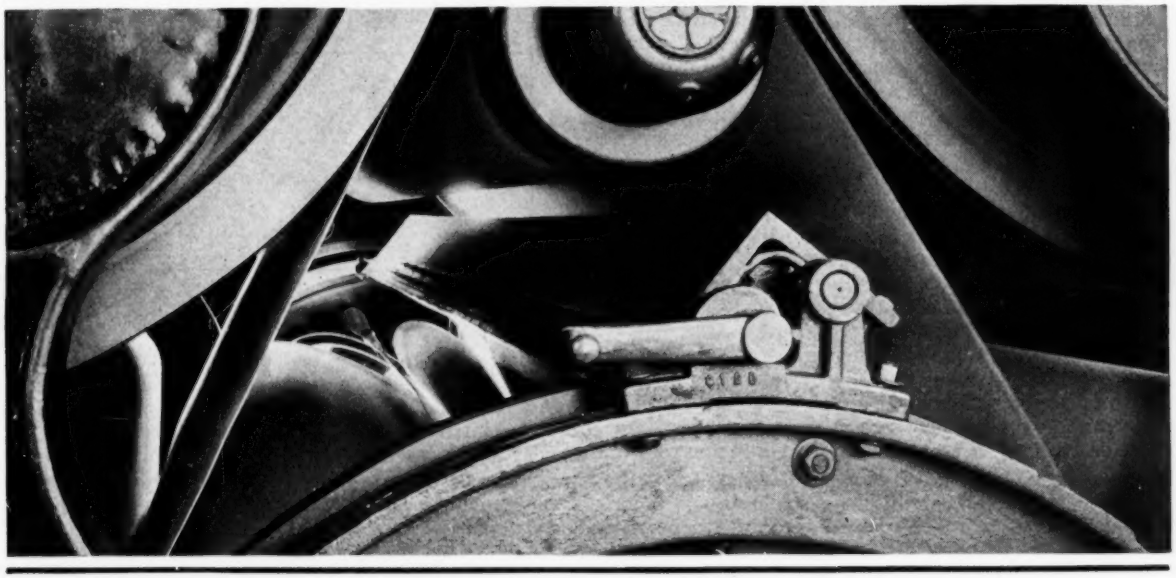
Grand Rapids, Mich.—The National Hangerform Company, 522 Murray Building, Grand Rapids, recently organized, is said to be planning the operation of a local plant for the manufacture of folding paper boxes and containers, as well as other paper goods. The new company is headed by Alvis Culver and Francis J. Baker, Jr.

Detroit, Mich.—The Cadillac Wall Paper Company, 531 Randolph street, is planning the rebuilding of its storage and distributing plant, and company headquarters, at location noted, recently destroyed by fire with loss reported over $100,000, including stock.

Montreal, Que.—The Howard Smith Paper Mills, Ltd., 407 McGill street, have concluded arrangements with the Government of Ontario for the acquisition of a tract of about 965 square miles of spruce pulpwood in Ontario, and will develop as a source of future supply of raw material. With this acquisition, the company will hold a total of about 2000 square miles of woodland in Ontario.

Toronto, Ont.—The Ontario Power Service Corporation, Toronto, an interest of the Abitibi Power and Paper Company, Toronto, is pushing construction on its hydro-electric power project on the Abitibi River, and expects to have a portion of the station ready for service in the near future. The entire development will represent an investment of about $50,000,000, including transmission system for service at different mills of the company.

There is ONLY ONE WAY to have dryers like this



— and that is to put Vickery Doctors on them. They work continuously and automatically, with no finicking adjustments, no hand fitting, no re-setting.

BIRD MACHINERY

Put a Vickery Doctor on one dryer roll. Compare its operation with any other roll — doctored or undoctored — in your mill. You will see then why Vickery Doctors are so profitable. Try one at our expense.

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Use

VICKERY DOCTORS

Pumping High Density Stock and Other Liquids*

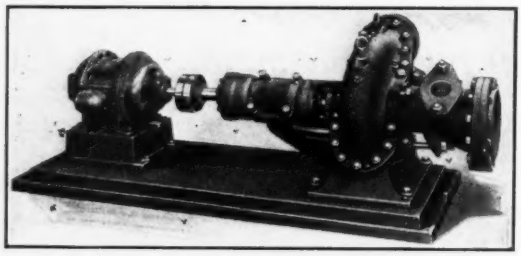
One of the most difficult problems confronting the pump manufacturer for many years past has been the development of a centrifugal pump to handle paper stock of high density, without clogging, and still keeping the power requirements within a reasonable figure.

The reciprocating plunger pump had always successfully handled paper stock; the power requirements were not excessive, and until late years was considered to be the only efficient and suitable type of pump for such service. Built sturdily, of heavy and rigid construction, slow moving parts, with large waterways and large ball valves to give ample valve openings, they have been the principal pumping equipment in hundreds of paper mills, and many of these pumps are still in operation today, with 25 to 30 years of continuous satisfactory service to their credit.

The demand for smaller, lighter and less expensive pumps brought the centrifugal pump into use for this service, and although the ordinary commercial type was ill suited to handle liquids of this nature, the use of open impellers, with large clearances between the impeller and casing made it possible to substitute this type of pump for some services, where the stock was not too dense, and especially where the question of power requirements was of little or no importance. The efficiency of such centrifugal pumps was extremely low, and the power requirements so great, that they could not now be considered in a modern paper mill, when competition is so keen, that the cost of power is a very important item in the cost of porduction of a ton of paper.

The older "fan pump" as this type of centrifugal pump was called, was later followed by improved types, with various modifications of design, most of them using open type of impeller, with single, or double suction openings, and some with enclosed type of impellers with large openings.

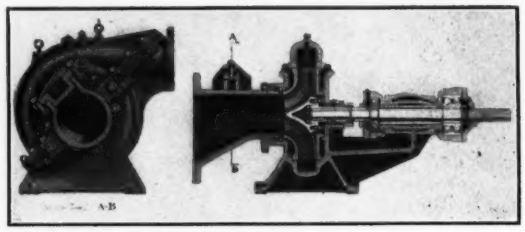
While these were a decided improvement over the fan



SHOWING PUMP WITH MOTOR

pump, occasional clogging still persisted, especially where the stock was dense, or very free, or where fibres were long, and material of a stringy nature, and the power requirements were still greatly in excess of the older type of reciprocating pumps. Frequent cleaning of the pump suction was necessary, and on week-end shut downs, or when for some other reason pumps were shut down for a day or so, cleaning or washing out of the pumps and piping was necessary, before putting pumps back into operation. This was particularly the case, where enclosed impellers were used, as water leaving the stock in the pump and piping left such a solid mass that the enclosed type of impeller would not clear itself when starting up.

By persistent experimenting, and thorough investigation of the difficulties encountered with the centrifugal pump on such service, incorporating suggestions made by practical paper mill operators, and working in close co-operation with them, a solution of the difficulty was found, and this type of pump has now been developed to the point where clogging is practically unknown, even when handling



CROSS SECTION OF PUMP

the most difficult stocks, and efficiences comparable to the reciprocating pump are now readily obtained.

An explanation of the reasons for clogging of an ordinary centrifugal pump, will more easily show why these earlier types were not at all suited for handling materials of this nature. Accepted practice dictated that impellers should be very wide, at both the inlet and outlet of the vanes, so as to readily pass the stock, and avoid clogging. Investigation, and experimenting proved conclusively that clogging never occurred at the outlet, but this always took place at the inlet to the impeller, and that by proper design of entrance, very dense stocks could be successfully handled, without clogging, even though the impeller was of comparatively narrow width at outlet.

The usual type of impeller has numerous vanes, with fairly thin vane tips at the entrance, and usually beginning at or near the diameter of the entrance eye of the impeller. When pump is running, these sharp vanes impart a considerably whirling motion to the incoming stock, and which by centrifugal force, separates the water and thinner stock from the mass, throwing it outward toward the outer diameter of the pump opening or suction pipe, and leaving the more dense stock in the center. This thinner stock at the outside is readily picked up by the impeller blades, but the center of the stream may eventually become thickened to such a point that when it does reach the impeller blades, it is a mass of such density as to effectively close the opening between the blades and cause the pump to cease pumping because of the clogging of the entrance.

To overcome this condition, impellers were built, using only two or three vanes, and warping or twisting these vanes so that they project outward nearly into the pump suction connection, and carrying the leading edge of these vanes down to where they met each other at the center line of the impeller.

This construction of the vanes gives a screw conveyor, or continuous scoop effect across the full area of the suction pipe, allowing the stock to be picked up uniformly over the entire entrance, and forced into the impeller channels. Water separation of the stock is thus avoided

* Material for this paper was prepared by W. P. Gargan, engineer, Goulds Pumps, Inc., Seneca Falls, N. Y., and presented by C. M. Klepser, sales representative, Syracuse Office, Goulds Pumps, Inc., at the Spring Meeting of the Northern New York Division of the American Pulp and Paper Mill Superintendents Association, Syracuse, N. Y.

CANTILEVER

Downingtown Suction Rolls are built in both Cantilever and Standard Types, with suction pump connection on either front or rear. All rolls are fully adjustable while running. This includes the packing strip adjustment, deckle adjustment and adjustment of angular position of the suction box. Furthermore, when the roll is idle, the packing strips can be removed through ports in the end heads, without removing the suction box, or dismantling the roll in any way. A complete description of the Downingtown Suction Roll and its advantages is contained in our Catalog 103. Write us for a copy and a list of concerns using this improved type of suction roll.

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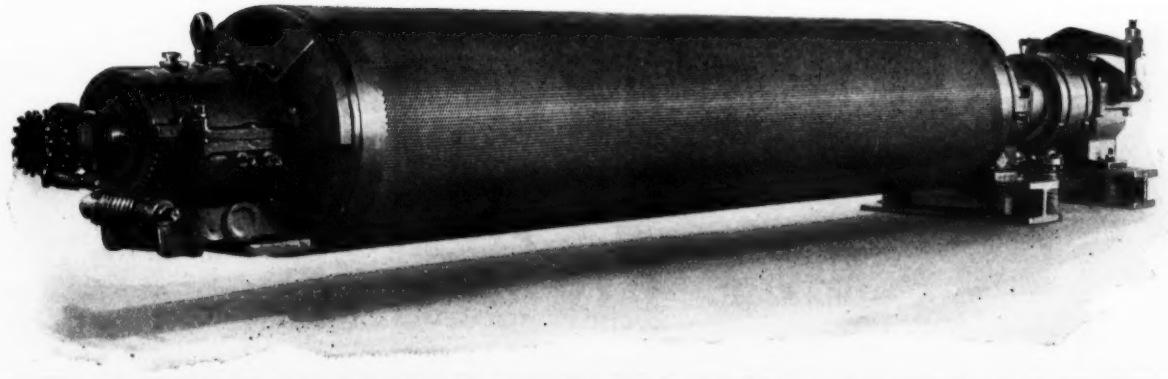


and stock thickening at the center is entirely eliminated. Another distinct advantage of this design is that the back wall of the impeller is carried outward toward the suction, to form a cone shaped entrance, flush with the inlet tips of the vanes. By securing the pump shaft to the back wall of the impeller, there is no projection of shaft or shaft nut into the eye of the impeller, where materials of a stringy or long fibred nature might find lodgment, to wind or spin, and form a place for stock to adhere to and build up until entrance becomes clogged.

Besides clogging at entrance, another frequent cause of difficulty in handling stock was found to be caused by the pump casing becoming "air bound." This would cause a reduction in the capacity and pressure delivered, and in some cases entirely prevent the pump from delivering any stock. In many cases, pumps that showed a reduced quantity, or no delivery at all, and were thought to be clogged with stock, were upon opening up found to be entirely free at entrance, and the entire difficulty caused by air accumulation in the upper part of the pump. casing.

As practically all stock contains more or less entrained air, the amount depending upon the kind of stock, its temperature, and the method of agitation used, the liberation of this air or vapors in the pump casing will allow it to collect in the highest point, seriously reducing the amount of stock handled, and also the pressures developed by the pump.

Centrifugal stock pumps having discharge nozzles extending outward horizontally from the bottom, or upwards from the side of the casing leave a possible air pocket in the upper part of the casing, which will not readily vent itself of accumulated air.

This condition can be eliminated by bringing the discharge nozzle outward horizontally from the highest point of the casing. This permits any air to be readily entrained in the liquid discharge from casing, preventing any possibility of the formation of an air pocket, and providing smoother, quieter and constant discharge.

Centrifugal pumps built along the above lines, and incorporating the impeller with screw type vane at entrance, and a top horizontal discharge nozzle, quickly proved the soundness of the design, and have been found to be absolutely reliable for continuous, non-clogging uninterrupted service, even when handling stock of high density, and also showing efficiencies very much higher than it was thought possible to obtain with centrifugal pumps handling materials of this nature. More than one hundred pumps of this design are in service handling paper stock of all kinds, some of them on stock up to 6 per cent, and in a few cases of even greater density, and without a single instance of clogging having been reported.

The high efficiency obtained effects a considerable power saving, and the lower initial cost, suitability for direct connection to high speed low cost motors, small space requirements, all are factors which should be considered in any plants for modernizing, or expansion of existing mills. Practically all the new paper mills built in the past few years use centrifugal pumps for practically every branch of stock pumping, excepting in such services, as for broke stock from the broke beater, or other like services where the capacity required is much too small for the average centrifugal stock pump to be used for continuous operation.

The increasing use of waste paper for making over into wrapping paper, sheathing or board, has introduced another difficulty in pumping this kind of stock. Baled scrap usually contains considerable foreign material such as rags, wire, paper clips, rubber bands, etc., and even though it may be fairly well screened out during continuous beating, in the dumping of a beater or in batch beating some of this material is carried into the pump and frequently causes clogging of the impeller.

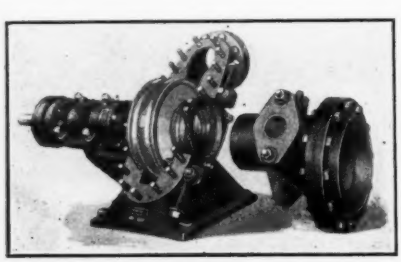
Where books or magazines, etc., are used for making up a better grade of paper from waste products by means of a chemical cooking process, the shredding of the waste material does not separate the cloth book bindings, wire clips, etc., and this is carried over into the cookers, or digesters, and must be handled by the pumps. Long stringy material may find a place to wrap or lodge on the vane tips by wrapping across the edge. This forms a convenient point at which successive material can build up, until the accumulation may close the opening between the blades, clogging the entrance and necessitating shutting down the pump for cleaning.

This difficulty was overcome by developing impellers following the same screw conveyor design of inlet, but the entrance edge of the blades instead of being narrow, was increased in size to give a more blunted tip, well rounding in shape where it makes contact with the incoming stock. This vane shape at entrance permits long stringy materials to slide by the tip without wrapping or clinging to the vanes, and effectively prevents clogging of entrance, even when handling high density stock.

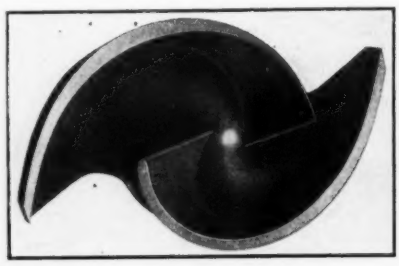
In mills manufacturing heavy wall or insulating board, this type of impeller has been successfully used, even though this stock is usually long fibered, and of a very free nature. While it was formerly thought by board mill men that only a large diameter plunger pump would handle such *free* stock, it required only a short trial of centrifugal pumps using this type of impeller to prove that it was entirely suitable, and many are now in successful and satisfactory service in such mills.

One particularly difficult stock pumping proposition might be mentioned, to show the adaptability of this new type of centrifugal pump to handling stock of high density, and containing considerable foreign matter of a long stringy nature where the temperature is also high enough to readily liberate vapors which could quickly cause vapor binding in the pump casing.

This paper mill is located in the lower Adirondack region of New York State, making a high grade paper, and using considerable stock made from old magazines and



EXPLODED VIEW



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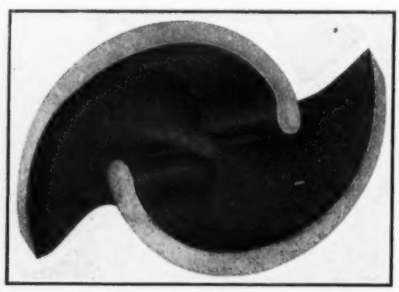

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books. This waste paper is run through a shredder, from which it is conveyed, unscreened, to the digester, or cooker, where it is given a cook using caustic soda solution. During the cook, the stock is kept in continuous circulation, the pump taking the stock from the bottom of the vessel, and discharging it at high velocity through an orifice plate in the top of the cook Tank. The temperature of the stock rises from approximately 160° F. to 205° F. at the finish of the cook, and the density ranges from 6 per cent to as high as 8 per cent. Considerable foreign matter, such as long pieces of book binding, or cloth, and metal binder clips is contained in the stock.

This material was very difficult to handle without clogging, and the older type of fan pumps, with large side clearances had been used for this service, but the power requirements were very excessive, requiring a 60 hp. motor to operate the pump. One 8 in. centrifugal pump, with the special type of round tip vanes on impeller inlet, and top horizontal discharge was put into service on this installation, rated at approximately 1500 G. P. M. and direct connected to a 20 hp. motor. From the beginning this pump proved to be so perfectly satisfactory for this severe service, that four additional duplicate pumps were installed a few weeks later and all five have been operating in a very satisfactory manner handling this high density unclean stock, without clogging, and representing a power saving of 40 hp. on each pump or 200 hp. for the entire installation.

In another mill, one of the very largest sulphate mills located in the south, a trial pump was given a very severe test in competitive tryout with two other makes of centrifugal pumps using a very bad suction line to see if it was possible to cause the pump to become "air bound." As a result of the satisfactory performance of this trial pump, and the successful way in which it performed, 27 of these pumps were purchased in one lot for a new addition to the mill, in addition to a greater number of other pumps for handling water, and the various soda liquors used in the process.

In addition to the principal features already described relative to this new type stock pump, that is, the nonclogging impeller, and self ventilating casing, there are several other unusual and interesting points which may well be briefly mentioned, in order to show how completely this design incorporates features that make it particularly desirable from the mill operator's viewpoint.

The casing is made in two halves, divided on a 45° centerline, with the discharge nozzle and bearing housing cast and machined integral with the lower half of the casing. This construction permits the removal of the upper half of casing without disturbing the discharge pipe connection. The split bearing housing also permits the removal of the shaft, impeller, and bearing assembly as a unit. This bearing assembly consisting of a single and double row ball bearing, is contained in a water and dust sealed sleeve assembly, operating in a bath of oil, and the removal of the assembly from the housing does not break the seal, or expose the bearings to dust or dirt even when the pump is dismantled.

The sucton of the pump consists of a one-piece flanged eccentric increaser, securely bolted to the lower half of casing, and sealed with a ring packed stuffing box and gland. It also contains a hand hole and cover of liberal size for emergency cleaning, or inspection of the pump suction. Removal of the upper half of casing does not disturb this suction piece, or the suction pipe connections or gaskets. This piece is built with several sizes of suction pipe connections, and the shape of the increaser is such that no air pockets can possibly form, as might be the case if an ordinary standard concentric reducer was used.

Removable and renewable side liners, matching the impeller vane ontour, with close running clearances, are securely locked in the pump casing. Where abrasive material from the grinders, or metal clips or other metallic particles entrained in the stock might cause excessive wear of the impeller or side liners. the renewal of these parts can be easily and inexpensively accomplished. and will restore the pump to its original condition.

The shaft is also covered with a renewable shaft sleeve, where it goes through the stuffing box, thus requiring a very small and inexpensive renewal part at this point.

Washout connections to the casing, and in back of the side liners form convenient connection, for use when changing colors where stocks of different colors may be run through the pump.

Many of these new type stock pumps have now been in successful and satisfactory service for several years, during which time some of them have been used in handling practically every kind of stock found in the pulp and paper industry, and they can now be unhesitatingly recommended for any of the usual stock pumping propositions encountered in most paper mills. Ordinary ground wood, sulphite, soda, kraft, rag or any other clean stock is readily and efficiently handled without difficulty, and with minimum power requirements. In services where stock is of very high density, or because of the freeness, the foreign matter, or stringy material which may be contained in the stock, special consideration given to the best type of impeller blade design enables offering a pump which will operate satisfactorily on nearly any condition of service.

When requesting recommendations, or quotations for stock pumps from any pump manufacturer, by giving complete information as to the kind of stock, its density, freeness, the nature of any material which may be contained in the stock, the heads against which it is to operate, and the length, size and kind of piping and valves used in the lines, it will greatly assist the pump manufacturer in rocommending a type and size of pump which he can safely feel will be the best suited for the service.

The suggestions given by many mill superintendents. engineers, and operators, have contributed in a large measure to the development of this successful stock pump, and this company is greatly pleased to have the opportunity to express to the members of this organization, its appreciation for their valued assistance, and splendid cooperation.

Warren Co. Transfers Title

[FROM OUR REGULAR CORRESPONDENT]

Dexter, N. Y., April 27, 1931—The filing this week of a certificate with the county clerk shows that title to the entire property of the Warren Parchment Company has been transferred to the Ron-Noc-O Paper Corporation, of this place. The transaction included paper mill, equipment and water power rights. For the past month the mill has been operated by the Ron-Noc-O Company under contract awaiting the completion of the document transferring title. It was learned that the plant is now producing about ten tons of special kraft papers daily. John J. Warren, former owner of the Warren Parchment Company, was represented in the deal by the firm of Purcell, Cullen & Reynolds. It is reported that negotiations have also been carried on for some time past relative to the sale of the mill property of the Harmon Paper Company, at Brownville, also owned by Mr. Warren, and some announcement is expected in the near future.

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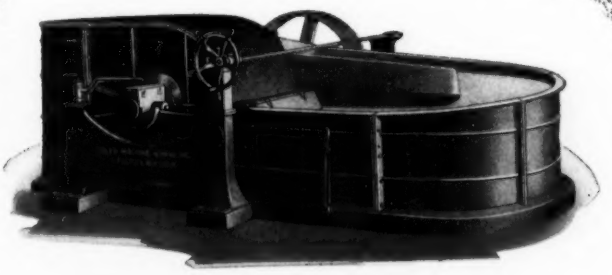

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Electrifying Machine Drives

Requirements and Developments

It is a long step from the old, all-mechanical paper machine drive, with its numerous belts, pulleys, countershafts, mortise gears and complications, to the ultra-modern, all-electric, sectionalized drive, with its many refinements and sensitive speed control, yet this pronounced advance has been consummated in a period of only a few years. So very rapid has been the development, in fact, that many of the mills have been unable to keep the pace and some of these now find themselves hard pressed to meet the competition of more progressive mills in respect to price and quality of product.

Most of these less fortunate establishments would like to electrify their machines, appreciating the advantages of the motor drive, but are not yet in a position to undertake the radical changes incidental to the installation of a modern sectionalized electric drive. For these mills, a single motor drive is looked upon with favor, but for such a drive to be satisfactory the question of necessarily close and positive speed regulation has heretofore presented quite a problem. This situation, however, has been accorded much attention recently and a good deal of progress has been made in perfecting the speed control of the drive motor.

The characteristics of various types of electric motors, their limitations as well as their advantages, have been given far more study by motor manufacturers than could be undertaken by any paper mill and just what has been achieved can very properly be presented best by one of the experts directly concerned with the development. The following paper, covering the question in a concise and clear manner, should be of particular interest, consequently, for the author is in an excellent position to diagnose the causes of speed variations, the chief deterrent to the more general adoption of the single motor drive, and to appraise the requirements for that drive service best meeting the needs of the paper machine.

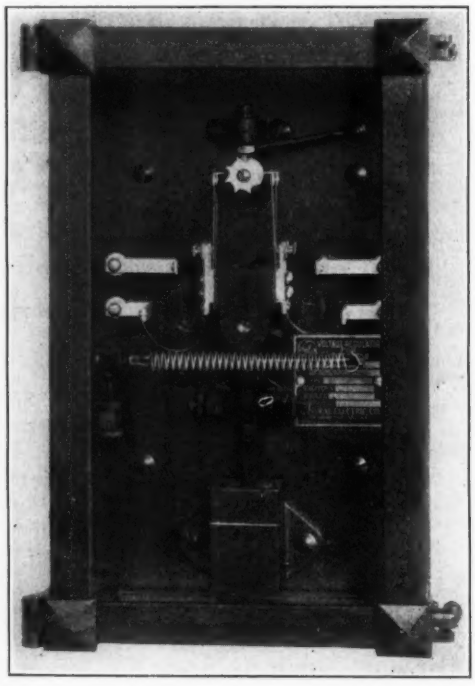
Speed Regulators for Single Motor Drives[1]

Following the days of the steam engine on the line shaft drive of the paper machine, numerous installations were made using various types of electric motors to drive the adjustable speed line shaft of the machine. For such service, the chief requirements are a drive speed which can be easily and conveniently adjusted over rather a wide range and one which when once adjusted can be maintained within rather close limits in spite of load variations.

The earlier installations used an adjustable speed, direct current motor supplied with power from a constant potential motor-generator set or by an engine driven generator. From such set-up, it was only a short step to the variable voltage, or Ward Leonard, system of speed control, where an individual generator is used for the motor on each machine, the generator voltage being adjusted to secure the desired variations in motor speed. Of somewhat more recent date is the use of adjustable speed, alternating current commutator motors, which, like the adjustable speed, direct current motors, have substantially constant speed under conditions of changing load.

Causes of Speed Variations

With any of the foregoing types of motor drives, there are a number of factors which may cause some objectionable



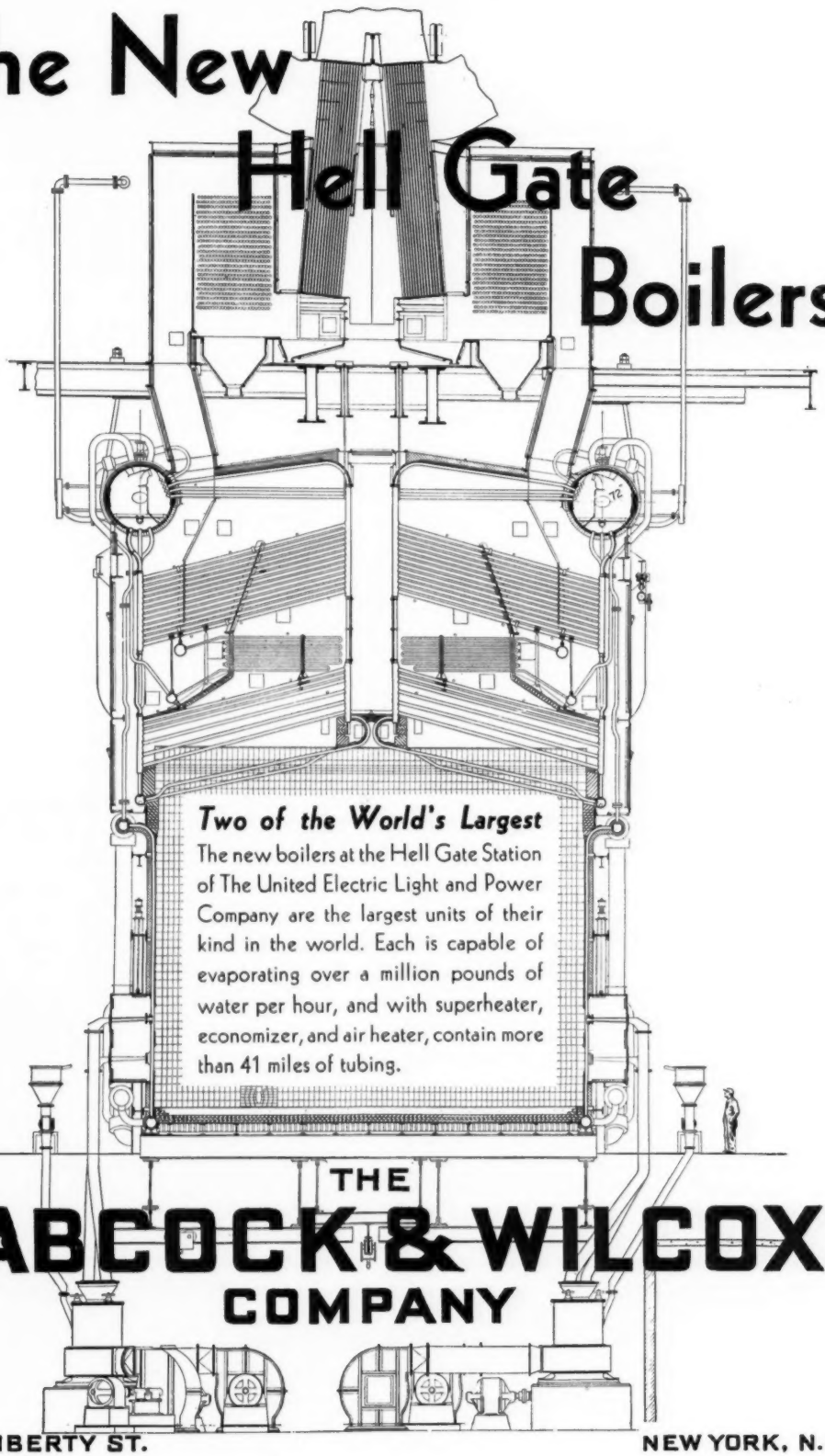
General Electric Co.

FIG. 1

Front view of rheostatic type direct current voltage regulator element, showing contact fingers and star-wheel driven by Warren Telechron motor.

[1] D. R. Shoults, Industrial Engineering Department, General Electric Company.

The New Hell Gate Boilers



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change in the speed of the motor under varying operating conditions. The more prevalent are, naturally, of chief interest and can very advisably be touched upon briefly.

A direct current adjustable speed motor running from a constant potential power supply, for example, is affected by any voltage variation in the power supply, but if the motor is excited from the same source that furnishes the power to the armature, the effect is somewhat reduced. This is because when the voltage is decreased, the field is automatically weakened to some extent, with the result that the motor speed tends to stand up in spite of the lowering of the armature voltage. Complete compensation cannot be secured in this manner, however, and there will be a resulting error in speed with voltage variations.

Another cause of speed variation is the increase in the resistance of the field windings when the motor heats up, resulting in a net reduction in field excitation. This causes an increase in motor speed which has to be corrected by means of the field rheostat. Also, there is the effect of changing load on the motor, for an increase in load causes an increase in armature current. Under such circumstances, there is a reduction in motor speed due to the increased voltage drop in the armature circuit.

Some of these errors, causes of speed variation, under different conditions of operation may be of the compensating variety and once the machine has settled down to steady running the motor speed may become substantially constant. On the other hand, when conditions are rapidly changing, these errors may be cumulative to such an extent as to become objectionable. A drift in speed of 5 per cent., at least, may be expected.

With the variable voltage system of control, there are the same fundamental, or basic, causes of speed variation, for the power system supplying the motor-generator set may be subject to fluctuations in frequency. Such variations result, of course, in a change in exciter and main generator voltage. Also, the exciter voltage is subject to further variations by virtue of changes of temperature in the fields, while the output voltage of the generator itself is subject to change. The latter, due to changes in speed and changes in excitation, to exciter voltage variation and to temperature variations in its own field or in that of its field rheostat. Similarly, the motor driving the line shaft is subject to field changes which affect the speed and there is a certain inherent degree of regulation due to load changes.

True, the variations in exciter voltage are compensated to some extent, since the motor and generator fields are weakened or strenghtened concurrently, but the changes due to speed variations in the generator are reflected directly in motor speeds, as is also the change due to load variations. The combined effects of these factors may easily cause speed changes of from 5 to 10 per cent. under extreme conditions at the lower speeds. The change due to load variations, in particular, is essentially constant, so that the effect of the load on the speed is relatively more serious at low than at high speeds.

Speed Characteristics of A-C Motors

The commutator type, alternating current motor, in common with other motors operated on alternating current supply, is subject to speed changes due to frequency variations and to voltage variations in the power supply. In addition to which, these motors have a regulation due to load changes which may be as much as 10 per cent. from no load to full load at high speed and from 15 to 25 per cent. at low speed. Furthermore, the regulation due to load is lower when the machine is cold and increases as the motor attains normal operating temperature.

In the application of these motors to paper machine drives, consequently, it is fortunate that the operating load on the paper machine is substantially constant, once the machine is under way and paper on the reel. The major cause of motor speed variation with adjustable speed alternating current motors is thus circumvented to a considerable extent by the very nature of the drive. Nevertheless, for exacting requirements, it is very questionable whether the machine speed could be kept sufficiently constant without the refinement of suitable regulator control.

Regulator Requirements

Sensitive control over the motor speed is always desirable, of course, so on small paper machines where the use of the sectional drive is not deemed justified and on older machines with a satisfactory mechanical drive requiring replacement of motive power, it is advisable to provide an adjustable speed drive which will permit not only easy adjustment of speed, but provide means for correction in case the speed tends to vary from the desired value. That is to say, the use of a suitable speed regulator is entailed.

The controlling device must be accurate and sensitive, but with motor equipment of proper size, the variation in speed due to load changes is not apt to be excessive and the regulator does not have to possess super-speed capacity. The main problem is to prevent permanent chances of speed which will be reflected as variations in the weight of the papers produced. In other words, the motive equipment, by its inherent design, must be sufficiently stiff in characteristics to avoid speed changes when jogging in one of the sections which will disturb the operation of the wet end of the machine.

The satisfactory regulator must be simple and rugged in design and with characteristics easily understood by the mill electrician. It should be one upon which adjustments may be made readily and in case of difficulty with any part of the regulating equipment, it should be possible to withdraw the regulator from service without disturbing the machine, so as to allow the machine to operate normally until the regulator can be replaced.

Regulator Equipment

The equipment usually employed to provide speed regulation on a single motor line shaft drive consists of a small direct current, separately excited, generator which is chain or belt driven by the line shaft whose speed it is to control. The armature voltage of this generator, with constant excitation, is a direct measure, therefore, of the line shaft speed. This voltage is then applied to a circuit including an adjustable resistance and the coil of a voltage regulator element. The connections of the voltage regulator, furthermore, are such as to correct the line shaft speed by maintaining a constant current through its control coils.

This arrangement has been used with more or less success for a number of years, but until recently has been subject to certain distinctive errors of its own which detracted from the reliability of the regulation. Variations in the excitation of the pilot generator changed the speed at which the generator (pilot) produced the voltage established by the rheostat setting. Even with the voltage regulator applied to the exciter bus, there has still been a possibility of excitation variation of the pilot generator, brought about by changes in its field temperature.

Avoidance of this error has now been effected by a speed regulator combination of pilot generator of somewhat special design and a voltage regulator element with auxiliary excitation. The design of the pilot generator is such that any voltage variation with a variation in excitation is held at a very low value, although not entirely eliminated. The voltage regulator element is wound with two control coils, one of which is exited from the armature of the pilot generator and the other by virtue of several turns placed in series with the

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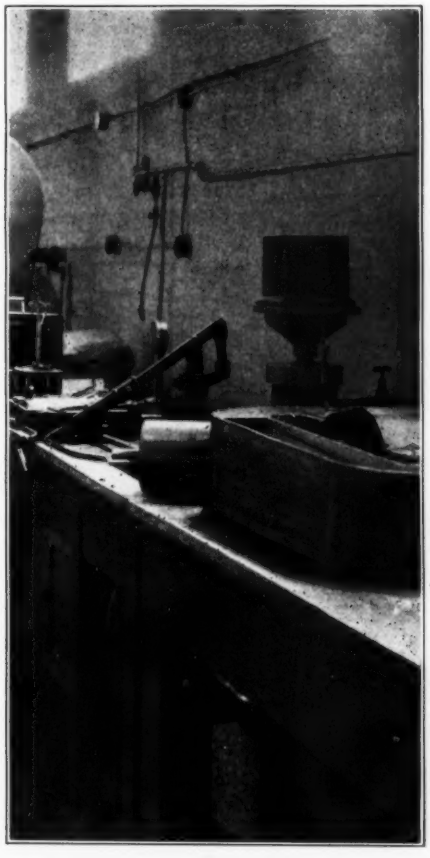

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pilot generator field circuit. The direction of this auxiliary winding is such that its action is opposed to that of the main winding. Also, the auxiliary winding is proportioned so that its effect counter-balances exactly the effect of changes in armature voltage caused by field current variation, with a plus or minus 10 per cent. variation in excitation. The operation of the regulator is not affected and will be directly responsive to the speed of the line shaft.

The adjustment of speed is made by adjusting the resistance in the circuit of the pilot generator armature and in the main coil of the voltage regulator. It is essential, therefore, that this resistance, when once adjusted, should be maintained at the set value, else the regulator will of necessity change the speed of the machine. The rheostats used for this purpose are wound with a special alloy resistance wire which has a negligible resistance variation with the ordinary variations, or fluctuations, in temperature. Thus is eliminated another of the frequently unknown and unsuspected causes of drift in speed on the regulator type equipments.

The regulator control element consists, essentially, of a substantial voltmeter combining the extremes of sensitivity and ruggedness, the moving element of which carries four contact fingers and is so arranged that when the machine is running at the proper speed, the output of the pilot generator is just sufficient to hold this element in mid-position. In such balance, none of the fingers make contact with their segments, but if the element is not in balance, one or another of the fingers makes intermittent contact with a continuously rotating star-wheel, completing a circuit which causes a motor operated rheostat to make suitable correction in the generator field circuit. The amount of correction is determined by the length of time the finger is in contact with the star-wheel point, which in turn is dependent upon the magnitude of the unbalance.

Thus, the proper correction is automatically and instantly effected.

In fact, the sensitivity of the regulator element is such that it will correct any speed errors in excess of half 1 per cent., plus or minus, of the desired value as established by the setting of the control rheostat. With such accuracy of control, weight changes may easily be made in small steps.

If it is desired to remove the regulator from service, the control switch of the device simply has to thrown to the off-position, de-energizing the control element and opening the circuit between the regulator and the motor operated rheostat. The machine then continues to operate at its previous speed and is in no way disturbed by the cutting out of the regulator. The resumption of regulator control is as readily effected and the speed of the machine being correct when the regulator switch is thrown to the "on" position, no speed change will be made and no disturbance created in the operation of the machine. The equipment is essentially a static device, inasmuch as it is called upon to function only when a correction in machine speed is necessary.

The regulator also operates as the accelerating control for the line shaft motor, provision being made for the generator rheostat, of the commonly used variable voltage (Ward Leonard) control system to return to the "off" position when the machine is stopped. When the "start" button is pressed for a resumption of machine operation, the generator line contactor is closed and the regulator circuit energized. The regulator at first indicates that the speed is low, of course, and accordingly causes the generator field rheostat to move in the "increase speed" direction. As the speed approaches the value determined by the setting of the control rheostat, the main generator rheostat is slowed down and stopped and the machine operates in response to the indications of the regulator.

It is believed that the regulator equipment functioning in this manner, as it does in the speed control of a 250-horsepower, single motor paper machine over a 10 to 1 speed range at the Marathan Paper Mills at Rothschild, Wis., will considerably extend the field of the single motor paper machine drive and will in time result in closer limits in weight control being specified and commonly accepted in paper manufacture. Even today, markets demand a weight control of within 3 to 5 per cent. of the desired weight, depending upon the products.

Regardless of the market, however, it is decidedly to the paper manufacturer's advantage to maintain his weight as close as possible in line with all around economy. Overweights are a detriment both to the producing mill, because of waste of materials, and to the consumer, on account of increased freight burdens and possibly because of poor operation of the stock in the converting machine.

Orders Increase in Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., April 27, 1931.—Paper manufacturers in Indiana, most of whom specialize in paper for the container trade, report a slight increase in orders during the past week. March and April are expected to go far toward overcoming a serious lack of business in the first two months of the year. The situation is far from satisfactory, but some of the bigger users are making inquiries and sufficient orders are bein received to lend encouragement to the producers. Some of the larger users of paper cartons and other containers report they have increased their production and likely will make further increases before the coming of summer.

Some increase is noted in demand here for wrapping papers, bags and kraft and prices in these lines seem to be very firm, due largely to improved demand. Stocks in the local warehouses are not heavy. Some believe that an increase in prices has stimulated the market somewhat and given the buyers more confidence, but this is not reflected in any effort to make larger purchases. The buyer still buys only what he has to have.

Demand for glassines is improved also, but there is a disposition to shop around and get the lowest price and due to anxiety on the part of some to sell, the price situation is not staple. The horizon of possibilities for this class of merchandise continues to broaden.

Building papers are not moving as they should. Dealers are selling from their stocks and are buying sparingly. The spring has been rather late in spite of an open winter and the regular spring building rush has not started. When it does, the reaction in favor of building papers will be immediate due to lowering stocks in hands of retailers.

16 MM Movies in Industry

With the perfection of amateur movies has come a general adoption by many branches of modern industry of this accurate and inexpensive method of visual recording for many practical purposes.

"The Uses of 16 mm Movies in Industry," a paper prepared and read by Maynard L. Sandell before the American Society of Mechanical Engineers last December, created a widespread interest in the adaptation of movies to industrial purposes.

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IN FAIRNESS

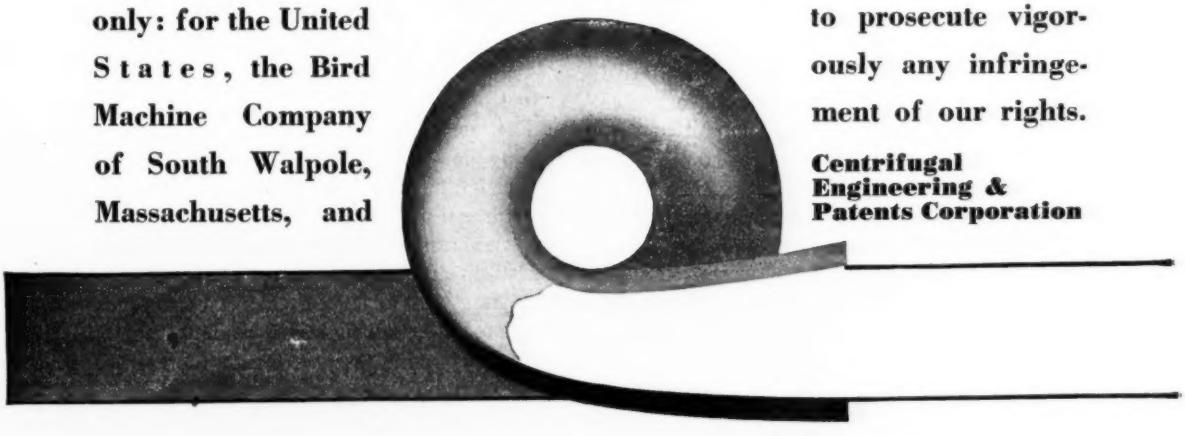
To ourselves—our licensees—and the paper industry, we feel it necessary to give this notice to all who may be interested:

That we own the so-called Erkensator patents which cover the process of purifying pulp in centrifugal machines as made by our licensees, and other machines operating on the same principles.

That our present licensees under these patents are the following only: for the United States, the Bird Machine Company of South Walpole, Massachusetts, and the Tolhurst Machine Works, Incorporated, of Troy, New York; for Canada, the Canadian Ingersoll Rand Company, Limited, of Montreal.

That in view of the cost of developing the machinery and processes covered by these patents, and their value as a contribution to the art of paper-making, which their record proves, we shall feel compelled, both by our own interest and our duty to our licensees, to prosecute vigorously any infringement of our rights.

Centrifugal Engineering & Patents Corporation



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A NEW BOOK BY A TAPPI MEMBER

The Technical Association of the Pulp and Paper Industry in its efforts to focus the attention of the industry on manufacturing trends has devoted much time during the past year to the subject of patents. It is, therefore, interesting to know that one of the association members, Dr. Joseph Rossman, who is a patent examiner in the Patent Office, has recently published a book entitled, "The Psychology of the Inventor."

Doctor Rossman is a member of the Bar of the U. S. Court of Customs and Patent Appeals and the U. S. Supreme Court and is also a chemical engineer. At the recent annual meting of the Technical Association Doctor Rossman read a paper on "What Patents Mean to the Paper Technologist." So much interest has been aroused throughout the pulp and paper industry by the informative bulletins issued by the TAPPI Patents Committee that Doctor Rossman's book is indeed timely.

The book deals with a much broader subject than is indicated by the title and is in fact a thorough treatise on the subject of invention. It is based on an investigation made by the author in which he successfully induced most of the outstanding living inventors to cooperate in giving information that enabled him to make an analysis of the mental operations of the inventor in terms of his own reactions and testimony.

The information received outlined the inventor's attitudes, trials and troubles, his dealings with the Patent Office and the courts as well as with the public and capital. Such inventors as Edison, Elihu Thomson, Henry Ford, John Hayes Hammond, Jr. corresponded with Doctor Rossman, supplying the foundation material for the book.

The part of the book which is particularly noteworthy is the study reported by the author of the individual characteristics of inventors in which he classifies them into distinct types. Attention is paid to the influence of heredity on the inventive inclination of individuals is discussed.

To the lay reader the book should be particularly interesting since references are made to many well known inventors and everyone has undoubtedly been acquainted with individuals who have had inventive indications and can therefore read the book with thought of such individuals in mind.

For the leading executives and superintendents of the pulp and paper industry who are responsible for the future of the industry the treatise will supply valuable information relative to the training and encouragement of inventors. The industry has been lagging in its support of research and invention and has probably devoted too much time to the art rather than the science of papermaking. The new competition so called is a battle between products that can serve the same use. Already one branch of the paper industry is witnessing the rapid development of a market that should belong to it. Unless research and invention is properly and generally stimulated and the inventors assured of protection in the paper industry there can be but few prospects of continued prosperity. We are entering a new era which will require technical leadership of a high order. The companies that are now building their technical organizations and who are training technically trained men for positions as superintendents and managers will be well repaid for their foresight.

Doctor Rossman's 225 page book may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 370 Lexington avenue, New York, at $3 per copy.

LOW POINT OF CYCLE REACHED

Current developments offer further support for the view that the low point of the cycle of business activity has been approximately reached but fail to show any immediate prospect of marked recovery according to the Guaranty Trust Company of New York.

"The usual spring peak has come and gone without bringing any definite signs of significant improvement," "Expansion in most industries last month was of no more than seasonal magniture. The general tendency is reflected in the revised index of business activity of the Guaranty Trust Company for March, which stands at 72.3, showing only a fractional advance from the February level of 71.7. Although the actual figures for nine of the ten series included in the index rose last month, the upward movements in four of these cases were smaller than is usual for March, with the result that the adjusted figures show an equal number of advances and declines.

"Reports so far available for April indicate that the customary spring recession is under way, but that it is proceeding in an orderly manner quite different from the precipitate retrenchment that was witnessed in the latter part of 1930. Most branches of business appear to be conducting their affairs in a highly conservative manner, carefully avoiding premature expansion but maintaining a

liquid condition favorable for quick response to any signs of genuine improvement.

"If business psychology at the present moment contains little of the unwarranted expectancy that persisted in belittling the significance of the depression throughout its early stages, it is equally free from the almost panicky dismay that was shown during the autumn and winter, when it became clear that the more optimistic views had not been borne out. Business has settled down to a sober acceptance of the situation, coupled with a determination to make the most of any opportunities that may present themselves.

"The failure of any significant revival to make its appearance during the early spring stimulus is generally interpreted as an indication that business activity will probably remain at low levels for the time being, with a distinct possibility of recovery at the end of the summer. While some real improvement may occur in the meantime, seasonal influences during the late spring and early summer are not such as to provide a favorable setting for revival. Major depressions in the past, moreover, have usually contained periods of some months' duration when activity remained virtually stationary at low levels, although the widths of these 'valleys' show considerable variation. However, in view of the comparative stability of industrial operations and trade volumes in the last few months, little doubt exists that the next significant movement will be upward.

"This view of the situation seems to find support in the recent behavior of security and commodity markets. Stock prices have passed through several periods of weakness, and the present level is probably not far above the low for the year to date. The recent declines were apparently due, in part, to unfavorable earnings reports and dividend reductions, which, of course, reflect past conditions and bear on the future only in so far as they affect present and prospective buying power. The trend of commodity prices in the last few weeks has been no more reassuring, with downward movements in the large majority of basic raw materials, including the strategic groups of farm products and metals. The wholesale price index of the Guaranty Trust Company for April 15 stands at a new low of 51.1, showing a decline of 2.9 points from the March level, following a slight upturn a month ago.

New Director for Howard Smith Mills

Succeeding the late C. Howard Smith on the directorate of Howard Smith Paper Mills, Limited, C. L. Burton, was elected a director at the annual meeting of the Company.

Mr. Burton is president and director of Simpsons, Ltd., and heads the various affiliated companies; he is president and director of Keens Manufacturing Company, the Thompson Manufacturing Company, the Toronto Industrial Commission; he is a director of the North American Life Insurance Company.

At a meeting of Canadian Cellulose Company, Ltd., a subsidiary of Howard Smith Paper Mills, Ltd., E. K. Robinson was appointed vice-president to fill the vacancy caused by the death of C. Howard Smith. Mr. Robinson is also manager of Canada Paper Company.

Deny Review for Power Contract

Plattsburg, N. Y., April 27, 1931.—An order to review the contract between the Saranac Pulp and Paper Company and the Plattsburg Gas and Electric Corporation was denied this week at a hearing before Supreme Court Justice Pierce H. Russell. It was claimed by the hydro-electric concern, now a subsidiary of the New York State Gas and Electric Company, that the Saranac Company has sold power to private industry in violation of a contract. In rejecting the order Judge Russell said, however that if the pulp and paper company makes an attempt to sell power an application for a review of the original contract may be made. The fact that the Norstrand Manufacturing Company, makers of pie plates, had been receiving power from the Saranac Company brought about the request for review of contract as attorneys for the electric concern contended that the former was not a subsidiary as alleged.

The case was held at a special term of Supreme Court and brought forth considerable discussion from the representatives of both firms. Benjamin Feinberg, counsel for the pulp and paper company, charged that the power interests not only feel that they have an inherent right but a divine right as well to sell all the power used in Plattsburg. He referred to the plaintiff in the action as the Associated Gas and Electric Company, alleging that this was a bond-selling organization and that all the executives ever knew connected with it were bond salesmen. He contends also that a very close relationship existed between the Saranac Pulp and Paper Company and its subsidiary, the Saranac Power Company, with the Norstrand concern and said that wires leading to the latter plant were cut down recently throwing several hundred workers out of employment as a result. An action for damages is said to be now pending over this claim.

The counsel for the Plattsburg Gas and Electric Company, James Killeen, narrated the history of the contract and brought forth that the Saranac Pulp and Paper Company, which went out of the pulp business later, formed the Saranac Power Company and built a hydro-electric plant on the Saranac River. He claimed that the electric company made an agreement with the Saranac Power Company to use its poles to carry power to its subsidiary with the understanding that no private industries would be served. It was alleged that the terms of this contract had been violated.

Lumber Drive on St. Regis

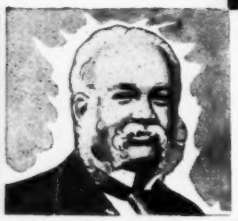
[FROM OUR REGULAR CORRESPONDENT]

PIERCEFIELD, N. Y., April 27, 1931—A scene of great activity is the St. Regis River in Northern New York where the annual drive of about 40,000 cords of pulp logs here is now under way. The drive was started from Meacham Lake in the Adirondacks where the choicest of spruce and balsam logs were gathered and it is under the supervision of John Davignon. It was learned that mountain streams are now in full flood with conditions very favorable for the movement. About fifty lumberjacks are being employed on the project and many persons have been attracted to the river to witness the skilled work of this crew.

The pulpwood was piled in huge stacks extending for a number of miles on the lake front during the winter and was cut by a lumber contractor of Lyons Falls. The logs were placed so as to be easily accessible to the St. Regis River and are now being rolled into the water in large quantities. The timber has been cut into various sizes and is being driven to a great boom at St. Regis Falls from where they will be transported to their final destination, by rail.

HIGH SPOTS IN CHEMICAL HISTORY

No. 2 of a series of advertisements tracing the development and uses of modern chemicals



In 1884, Hilaire de Chardonnet, a French nobleman, patented a process for manufacturing artificial silk, which consisted in forcing nitrocellulose through fine capillary openings.

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Section of the

Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

For photostatic copies of articles appearing in the Abstracts Section, address the chairman of the Abstracts Committee, Dr. Clarence J. West, National Research Council, 21st and B Streets, Washington, D. C. The charge for this service is as follows: 9 x 11 inches, 18 cents each; 18 x 11 inches, 35 cents each; 22 x 18 inches, 70 cents each; minimum charge, 50 cents. Copies of United States patents may be obtained from the U. S. Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Miscellaneous

Builds Big News Print Mill at Bucksport, Me. A. A. Tanyane. Paper Trade J. 91, No. 18, 49-52 (Oct. 30, 1930).—A description of the new 300-ton news print mill of the Maine Seaboard Paper Co., Bucksport, Me.—A.P.-C.

Everett Sulphite Pulp Mill Has New Features. Anon. Paper Trade J. 91, No. 18, 61-64 (Oct. 30, 1930).—A description of the sawmill and 175-ton bleached sulphite pulp mill of the Puget Sound Pulp and Timber Co., Everett, Wash.—A.P.-C.

New Olympic Forest Pulp Mill in Operation. Anon. Paper Trade J. 91, No. 18, 65-67 (Oct. 30, 1930).—A description of the 175-ton bleached sulphite pulp mill of the Olympic Forest Prod. Co., Port Angeles, Wash.—A.P.-C.

New Dalhousie Plant Is Model of Efficiency. Anon. Paper Trade J. 91, No. 18, 68-72 (Oct. 30, 1930).—A description of the Dalhousie, N. B., news print mill of the New Brunswick International Paper Co.—A.P.-C.

New Fir-Tex Board Mill Starts Operations. Anon. Paper Trade J. 91, No. 18, 76, 78 (Oct. 30, 1930).—A brief description of the new plant of the Fir-Tex Insulating Board Co., at St. Helens, Oregon.—A.P.-C.

Making Boards from Cornstalks at Dubuque. C. E. Hartford. Paper Trade J. 91, No. 18, 80, 82 (Oct. 30, 1930).—A brief description of the plant of the Maizewood Products Corp., at Dubuque, Iowa, where insulating board is made from cornstalks by the processes worked out in the chemical engineering department of Iowa State College.—A.P.-C.

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Interlake Mill at Merritton. A. R. R. Jones. Pulp Paper Mag. Can. 29, 561-562, 586 (April 24, 1930).—A description of the mill of the Interlake Tissue Mills Co., at Merritton, Ont.—A.P.-C.

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Model Board Mill. A. R. R. Jones. Pulp Paper Mag. Can. 29, 851-852, 862 (June 26, 1930).—A description of the new Toronto mill of the Hinde and Dauch Co.—A.P.-C.

Kraft Mill at Tuscaloosa. Anon. Paper Mill 53, No. 16, 2, 19-24 (April 19, 1930).—A detailed illustrated description of the mill of the Gulf States Paper Corp.—A.P.-C.

New Power Plant. Anon. Paper Mill 53, No. 35, 10, 36 (Aug. 30, 1930).—A description of the new boilers recently installed by Hollingsworth and Whitney Co., at their Winslow, Me., "Taconnet Mill."—A.P.-C.

Modern Mill in an Ancient City. J. N. Stephenson. Pulp Paper Mag. Can. 30, No. 3, 65-68, 92 (July 17, 1930).—A description of the plant of the Anglo-Canadian Pulp and Paper Mills at Quebec City.—A.P.-C.

Stories of British Papermaking: Culter Paper Mills, Aberdeenshire. Anon. World's Paper Trade Rev. 94, 498-513 (Aug. 8, 1930).—A.P.-C.

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Stories of British Papermaking: The Springfield Mills of W. R. Balston, Ltd. Anon. World's Paper Trade Rev. 94, 736-746 (Aug. 29, 1930).—A.P.-C.

Putting Paper Mill Wastes to Work. E. T. Ellis. Paper Maker & Brit. Paper Trade J. International No., 29-30 (1930).—It is suggested that sulphite waste liquor be used for the production of an agricultural disinfectant prepared by mixing 5 per cent of the concentrated liquor with 95 per cent of soil and drying; broke may be shredded for use as a packing material or hydrolyzed with sulphuric acid and the syrup obtained after neutralization and concentration, mixed with the residue fiber

and dried for use as stock feed; the carbonate sludge from the causticizing plant can be used for the manufacture of toothpaste; rag dust can be used as fertilizer; fiber from decantation save-alls which are not suitable for re-use can be sold to pasteboard mills; black liquors can be worked up for the production of sodium bicarbonate.—A.P.-C.

New Developments in the Cellulose Industries. Ralph H. McKee. Cellulose 1, 157-161 (Judy), 188-191 (Aug. 1930).—An address showing the value of research to industry, exemplifid by 3 typical cases: the improvement in the life of cotton belting by the use of a suitable belt dressing; production of artificial wool from jute; and production of a quick-growing hybrid poplar suitable for the lumber and pulp industries.—A.P.-C.

Institute of Paper Chemistry. Otto Kress. Paper Trade J. 91, No. 1, 56-58 (July 3, 1930); Tech. Assn. Papers Series 13, No. 1, 234-236 (May 1930).—A discussion of the functions of the recently founded Institute of Paper Chemistry.—A.P.-C.

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Paper Pulp From Pine Wood. G. Dupont. Bull. Inst. Pin 2nd Series, No. 4, 81-86 (April), No. 5, 97-101 (May, No. 6, 121-128 (June 1930).—A description of present-day practice in the manufacture of pine pulp in Scandinavia, and of the possibilities of its development in France, particularly in the Landes region.—A.P.-C.

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Developments in Mechanical Transmissions of Interest to the Paper Making Industry. Reginald Trautschold. Paper Trade J. 91, No. 18, 146-164 (Oct. 30, 1930).—A brief review of a few of the outstanding developments in several of the more generally utilized methods of power transmission.—A.P.-C.

General Advantages of Copper Tubes for Conveying Pulp. Pulp Paper Mag. Can. 30, 514-514 (Oct. 30, 1930).—The advantages of brass over cast iron and wood for the construction of pulp lines are briefly outlined.—A.P.-C.

Heat Requirements for Machine Rooms. A. E. Montgomery. Tech. Assn. Papers Series 13, No. 1, 260-261 (May 1930).—A discussion of the items which must be considered before attempting to arrive at a heat balance for the paper machine room.—A.P.-C.

Crosby Relay Valves and the Paper Industry. Anon. World s Paper Trade Rev. 93, 2322-2328 (June 27, 1930).—A description of the valve, with a discussion of its advantages for keeping constant pressure and temperature in paper machine driers.—A.P.-C.

Lubricants for Lubrication: Oils-Greases-Special Compounds. Reginald Trautschold. Paper Trade J. 91, No. 8, 46-53 (Aug. 21, 1930).—A discussion of the essential properties of a good lubricant in general, of oils, greases, and special compounds, and of the manner of application of lubricants.—A.P.-C.

Colloid Chemistry in the Paper Industry. Leo Friedmann. Paper Trade J. 90, No. 25, 55-56 (June 19, 1930).—A brief discussion of the principal constituents of book papers (pulp, fillers, size) and the part that collodial study can play in the paper making process.—A.P.-C.

Paper Manfr, in East Cheklang. Anon. Paper Maker & Brit. Paper Trade J. International No., 34-35 (1930).—A brief description of the mfr. process and a study of the trade practices.—A.P.-C.

Georgetown Plant of Alliance Paper Mills, Ltd. A. R. R. Jones, Pulp Paper Mag. Can. 30, 321-322, 334 (Sept. 18, 1930).—A description of the mill which manufactures coated paper.—A.P.-C.

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Observation and Control in the Mfr. of Paper. Thomas Costa Coll. Chimie et Industrie Special No., 452-457 (March 1930).—A discussion of scientific control in paper making comprising analysis of raw material, control of the mfr. processes, and testing of the finished product.—A.P.-C.

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Oxford Paper Mill Thoroughly Modernized.. Anon. Paper Trade J. 91, No 18, 102-106 (Oct. 30, 1930).—A description of the improvements carried out during the past year or two by the Oxford Paper Co. at its Rumford, Me., mill.—A.P.-C.

Rhinelander Paper Co. Reconstructs Plant. Anon. Paper Trade J. 91, No. 18, 112, 114 (Oct. 30, 1930).—A brief description of alterations and improvements made at the Rhinelander, Wis., plant of the Rhinelander Paper Co. to modernize it.—A.P.-C.

Evaluation of Unbleached Pulps Progress Report*

By Warren F. Moore [1] and William R. Willets [2]

Preliminary experiments by the authors using the TAPPI tentative standard beater method of pulp evaluation (Cf. Paper Trade Journal, Vol. 91, No. 11, pp. 78-81, September 11, 1930) showed that this method as published (Cf. Paper Trade Journal. Vol. 90, No. 8, p. 264, February 20, 1930) was relatively unsatisfactory where anything like complete testing data were desired. It was found that after several samples had been removed at the prescribed 15 or 20 minute intervals the circulation in the beater practically ceased because of the high consistency (demand-

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 17-19, 1931. Contribution of the Pulp Testing Committee.
[1] Junior member TAPPI United States Testing Company, New York City.
[2] Junior member TAPPI Western Electric Company, Kearny, New Jersey.

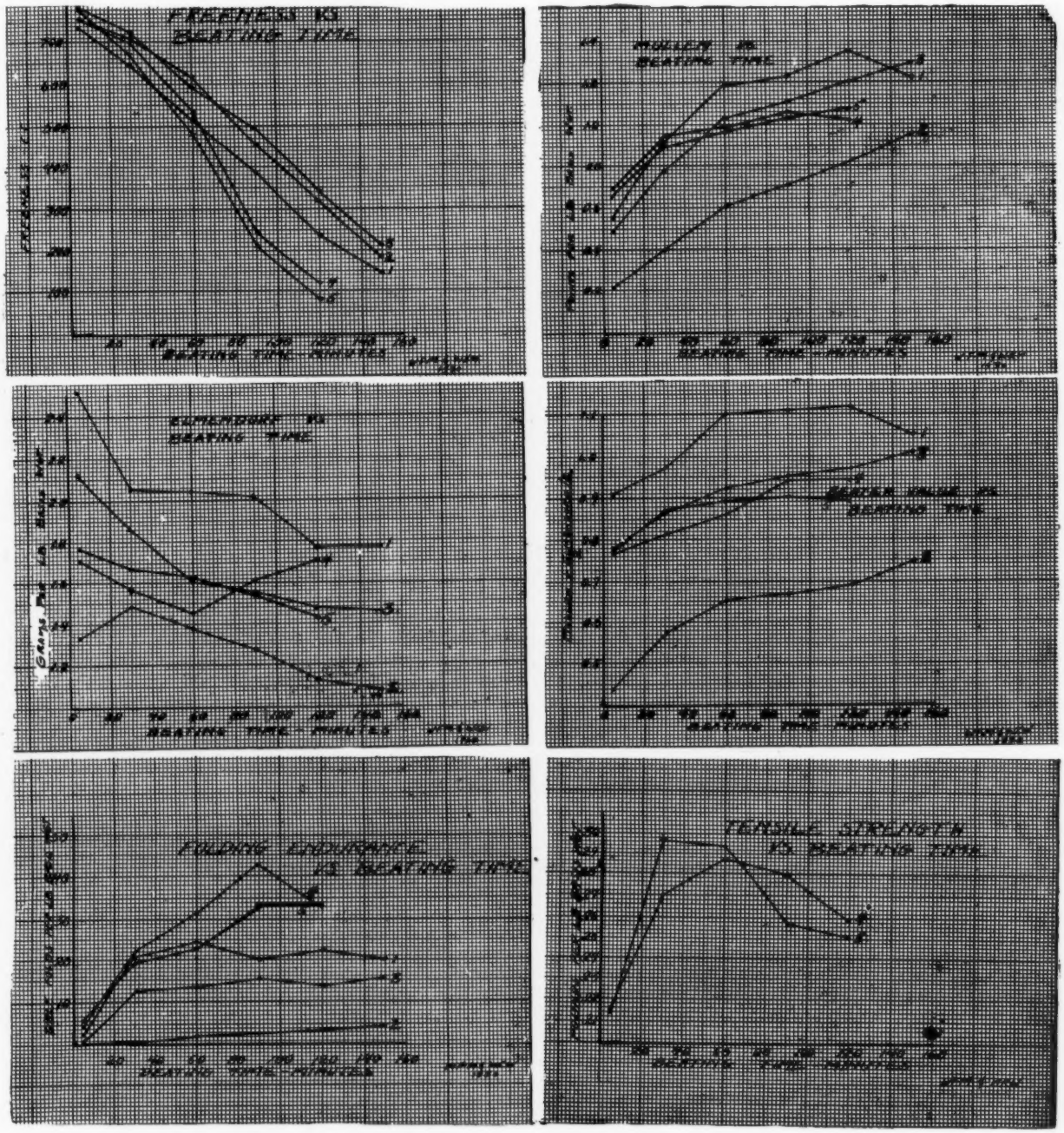


Chart 1—Unbleached Sulphite

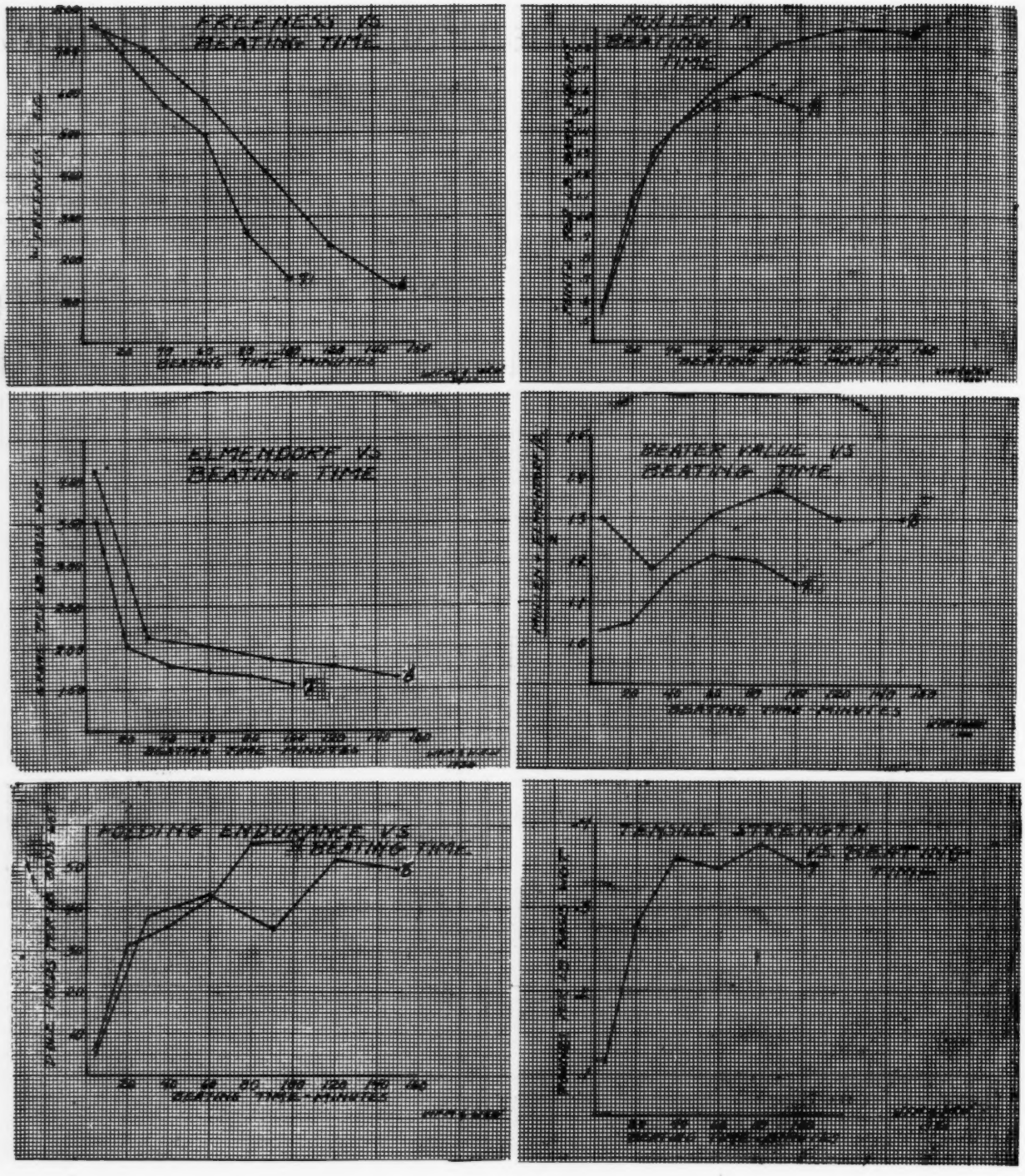

FREENESS VS BEATING TIME
ELMENDORF VS BEATING TIME
BEATER VALUE VS BEATING TIME
FOLDING ENDURANCE VS BEATING TIME
TENSILE STRENGTH VS BEATING TIME

CHART II—KRAFT

ed by the tentative standard method), the lessened volume of stock and the increased hydration of the pulp.

At first the use of a larger beater to secure complete results was considered but later it was decided to experiment with the small beater using a lower consistency. This report shows some of the results obtained, together with certain definite suggestions and recommendations for modifying the TAPPI tentative standard method based on the above mentioned data.

Method

The method used was that described in the TAPPI tentative standard method, with the exceptions that a consistency of approximately 1.75 per cent was used instead of 2.5 per cent (both air-dry), that the beater was filled to capacity, 23 liters, instead of 20 liters and that mechanical disintegration rather than manual disinegration was used.

Four hundred (400) grams of pulp (air-dry) were first thor-

oughly disintegrated in 10 liters of water using a motor driven device for 10 minutes. The pulp was then transferred to the 1½ pound beater and diluted to a total volume of 23 liters at a temperature of 25 deg. C. This gave a consistency of about 1.75 per cent air-dry or 1.57 per cent oven-dry.

The bedplate was then weighted, using 10 pounds for unbleached sulfite, and 12 pounds for kraft. Samples were removed after 5 minutes and then at intervals of 20 or 30 minutes in various cases. One (1) liter of stock was removed at each interval and diluted to 5 liters. One (1) liter of this diluted stock gave a desired basis weight of 55-60 pounds on an 8½ x 8½ inch sheet mold. A freeness test was made on the remaining liter; the drainage water from this when added to the freeness pat sufficed for the fifth sheet. The sheets were couched using wet second press felts and a roller about 6 inches in diameter.

After couching, the sheets were transferred to blotters, using 8 blotters between consecutive sheets, and pressed for 5 minutes at 200 pounds per square inch. They were then transferred to dry blotters, using 4 between consecutive sheets and further pressed for 2 minutes at 200 pounds per square inch.

The sheets were then trimmed to 7 × 7 inches, seasoned over night at 65 per cent relative humidity and 70 deg. F. and weighed. In all cases the basis weights (air-dry) were 55±2 pounds (25 x 40 — 500).

After weighing, four of the sheets were trimmed so as to give tearing, folding, tensile and Mullen samples, and the fifth to give all but the tearing samples (Cf. Fig. 1). By trimming the sheets in this manner it was possible to obtain 10 tears on a set of 4 sheets, 10 tensile and folding strips from 5 sheets and 20 Mullen pops on 5 sheets.

Mullen, tearing and folding endurance tests were made in the usual standard fashion. For the tensile tests the jaws on the Schopper tester were set 50 mm. apart and a 15 mm. wide strip used.

In calculating the results the averages in all cases were divided by the basis weight to give "points per pound" for the Mullen test, "grams per pound" for the tearing test, "double folds per pound" for the folding endurance and "pounds per pound" for the tensile test. The beater value was obtained as usual by the formula:

$$\frac{M + E/2}{2}$$

M—Mullen
E—Tear

Results

The results of the unbleached sulphite tests are given in Table 1 and Chart 1, and of the kraft tests in Table 2 and Chart 2.

It will be noted that in all cases the final freeness was below 205 cc. indicating very well hydrated stock. However, a definite break in the Mullen curve did not always occur, although there was a tendency to flatten. The greatest increase in Mullen and folding strength was observed during the first hour of beating, this period generally also marked the greatest decrease in tearing strength.

Practically all these pulps would be classified as strong for their class, and all but two of them (Nos. 4 and 5) are of the slow hydrating type.

Table I

Tests on Unbleached Sulphite Pulps

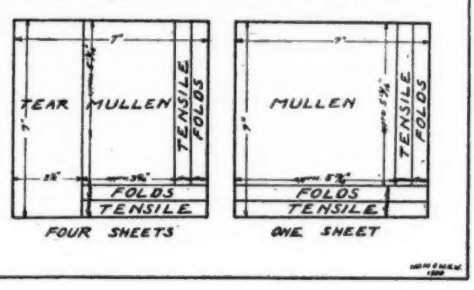
Sample No.	Beating Time Minutes	Freeness C.C.	Mullen Points/ Lb.	Tear Gms./ Lb.	Beater Value $\frac{M + E/2}{2}$	Folds Dbl. Flds./Lb.	Tensile 50 x 15 MM. Strip Lbs./Lb.
1	5	735	0.56	2.52	0.91	2.25	....
	30	645	0.91	2.06	0.97	20.68	....
	60	510	1.18	2.04	1.10	24.14	....
	90	385	1.22	2.01	1.11	20.36	....
	120	235	1.35	1.77	1.12	22.01	....
	150	145	1.22	1.77	1.05	19.97	....
2	5	760	0.22	1.33	0.44	0.06	....
	30	710	0.40	1.48	0.57	0.49	....
	60	620	0.61	1.38	0.65	2.08	....
	90	455	0.70	1.27	0.67	2.76	....
	120	310	0.82	1.13	0.69	3.29	...
	150	185	0.96	1.08	0.75	4.73	....
3	5	790	0.49	2.12	0.78	1.51	....
	30	725	0.78	1.86	0.86	12.05	....
	60	595	1.03	1.60	0.92	13.38	....
	90	495	1.11	1.55	0.95	15.05	....
	120	340	1.20	1.47	0.97	13.82	....
	150	205	1.29	1.46	1.01	15.92	....
4	5	760	0.69	1.71	0.77	4.65	0.218
	30	700	0.94	1.57	0.81	21.43	0.270
	60	535	0.99	1.45	0.86	31.72	0.287
	90	245	1.06	1.62	0.94	42.57	0.279
	120	110	1.02	1.72	0.94	32.91	0.259
5	5	785	0.66	1.77	0.77	6.2	0.215
	30	670	0.90	1.67	0.87	19.3	0.297
	60	480	0.97	1.61	0.89	22.9	0.294
	90	210	1.03	1.54	0.90	33.3	0.257
	120	80	1.07	1.42	0.89	33.3	0.251

Table II

Tests on Kraft Pulps

Sample No.	Beating Time Minutes	Freeness C.C.	Mullen Points/ Lb.	Tear Gms./ Lb.	Beater Value $\frac{M + E/2}{2}$	Dbl. Flds./Lb.	Tensile 50 x 15 MM. Strip Lbs./Lb.
6	5	760	0.54	4.11	1.30	5.08	....
	30	705	1.31	2.11	1.18	37.55	....
	60	580	1.61	2.01	1.31	43.29	....
	90	410	1.82	1.84	1.37	35.61	....
	120	230	1.89	1.79	1.35	51.38	....
	150	130	1.87	1.64	1.35	49.94	....
7	5	775	0.56	3.01	1.03	6.62	0.119
	20	695	1.08	2.04	1.05	30.98	0.280
	40	570	1.42	1.78	1.16	35.96	0.360
	60	495	1.56	1.73	1.21	42.75	0.346
	80	265	1.58	1.65	1.20	55.23	0.376
	100	150	1.51	1.55	1.14	55.82	0.349

FIGURE 1
METHOD OF STRIP CUTTING



Discussion

The use of a motor driven stirrer with a disc so designed as to defiber without hydration is simpler and quicker in every way than the manual disintegration recommended by the "Tentative Procedure."

A consistency of approximately 1.75 per cent air-dry will insure good circulation in all cases until the pulp is well hydrated or until a break in the Mullen curve is observed. This consistency is easily secured by using the equivalent of 400 grams of air-dry pulp in a total of 23 liters; at this volume the beater is filled but will not overflow. In addition to the data herein presented, a number of tests were made withdrawing samples (without making up any sheets) at 15 and 20 minute intervals, up to about 3 hours, at this point the circulation was still very good. This time is considerably longer than necessary to secure a complete beating curve.

The removal of one liter for each interval gives sufficient pulp to make 5 sheets of approximately 55 pounds on an 8½ x 8½ inch mold (a total of about 361 square inches). This area is sufficient for all tests, as will be seen from Figure 1. (Similarly, if the Bureau of Standard, 10 x 12 inch mold were used, 3 sheets could be made, having an area of 360 square inches). The amount of pulp withdrawn each time would in general depend on the size of the sheet mold but a variation in the volume

removed at each interval from 800 c.c. to 1200 c.c. (approximately 14 to 20 grams of pulp depending on the sheet mold size) will not affect the circulation at the consistency of 1.75 per cent.

All the data herein presented are for hard unbleached sulphite and kraft pulps which, as is generally known, are difficult pulps to hydrate. For krafts, especially, time intervals of 20 or even 30 minutes are sufficient to give a complete, detailed curve.

Conclusions

1. The use of a motor driven stirrer, using a disc which will defiber the pulp without hydrating it, is preferable to a manual disintegration of the pulp prior to adding the stock to the beater.
2. A consistency of approximately 1.75 per cent will permit good circulation even after the volume of the beater is very materially lessened by the removal of samples.
3. A time interval of 20-30 minutes for the removal of samples in the case of kraft pulps is preferable to 10-15 minutes as recommended by the tentative procedure.
4. The observance of a procedure approximating that herein described is recommended for pulp evaluation as it gives reproducible results with a minimum of effort and is applicable to all grades of wood pulps by using the different weights on the bedplate as recommended in the tentative standard procedure of the Technical Association.

Paper Testing Committee Report

B. W. Scribner, Chairman

New and Revised Official Methods

During the past year an official method for testing bulk of paper and revisions of the official methods for fiber composition, paraffin and starch were adopted by the association. The total number of TAPPI official paper testing methods is now twenty-seven. The proposed method for testing roofing felt, which originated in the former committee on roofing felt and paperboard, has been held as a tentative method for the required period of one year, and the association vote on its adoption as an official method is in progress.

Development Projects

Following is the status of the various development projects being handled by subcommittees:

CHEMICAL METHODS, P. F. WEHMER, CHAIRMAN:

Methods for determination of acidity and pH of paper are being investigated. These consist of Gosta Hall's method for total internal and external acidity, total acidity by titration in presence of the paper fiber according to the procedure developed by Dr. Jessie E. Minor, and electrometric and colorimetric pH determination as developed in the Federal Government laboratories. Samples of various types of papers in ground form, prepared by the Government Printing Office and duplicates of the samples used for the same purpose by the Government laboratories, have been sent to the subcommittee members for their tests by the methods mentioned or by any other method they may wish to use.

GREASE RESISTANCE, R. C. GRIFFIN, CHAIRMAN:

Duplicate samples of papers have been tested by the subcommittee members, using colored turpentine and red oil, and following the same detailed procedures developed by the subcommittee. The results indicated that these procedures are satisfactory for tentative standards at least, although further study of them is desirable.

WATER RESISTANCE, P. W. CODWISE, CHAIRMAN:

The efforts of this subcommittee have been given largely to refinement and standardization of the dry-indicator testing procedure. It was found by means of "round-robin" tests that every detail of the materials employed in the test had to be carefully standardized, in addition to the testing procedure, before concordant test results could be obtained by different laboratories. Mr. Codwise reports that the dye and sugar to be employed have been satisfactorily standardized, that the details of testing procedure have been improved, and that he expects to be ready to recommend a tentative method in the near future.

CHAIRMAN.

INK RESISTANCE OF PRINTING PAPERS, B. L. WEHMHOFF, CHAIRMAN:

Additional information of value to the subcommittee has been developed in the study of news print papers and news ink being made by the Government Printing Office. The further tests made indicate a constant relation between the porosity of the papers and the ink, but considerable departure from this relation was found in a few cases. Further study of the oil-absorption test is planned and work is being done to standardize castor oil for use as the testing medium

Complete details of these subcommittee activities are listed for presentation by the respective chairman at the sectional meeting on paper testing.

Fall Meeting

A discussion of directional designation in reporting strength test results, and a chart illustrating the correct designation of test strips, was prepared by F. T. Carson and L. W. Snyder, Bureau of Standards, for distribution at the fall meeting. This information was requested of the paper testing committee by the association secretary in view of apparent confusion, particularly in reporting results of tearing tests. In the association official methods, the direction tested is defined as that at right angles to the line of rupture, so as to conform to the direction of the fibers which resist the rupturing stress. But in the case of the tearing test there is a rather wide-spread custom of designating the direction tested as that along which the tear takes place.

General Developments in Paper Testing

An outstanding development in paper testing during the past year is the interest shown in methods related to permanency. Considerable research on such methods has been made in this country in government laboratories, the laboratory of the Rag Content Paper Manufacturers, and in the laboratories of many individual industrial concerns. Determination of acidity, pH, alpha cellulose, and copper number have received particular attention and the establishment of standard methods for these determinations should be feasible in the near future. Study of the various kinds of light that might be used for finding degree of resistance to light, and of oven conditions for testing effect of heat have also received attention.

I. H. Andrews, of Powell River, B. C., reported further results in his study of the relationship of ink viscosity to penetration in news print paper. Research on testing vapor transmission of paper was reported by Abrams and Chilson. Both of these reports are of particular interest to the association in view of the development work on similar subjects by the Paper Testing Committee. There is continued interest in finding a suitable "stiffness" test and several investigators are working actively on this problem. Search is constantly being made for improved means of measuring optical properties of papers. Two recently developed apparatuses for color measurement were described at the fall meeting of the Technical Association.

Apparently little progress has been made recently in micro-

analysis of paper fibers, although a demand exists for new developments in this direction, such as rapid tests for unbleached fibers present in small amount, and differentiation between bleached sulphite, soda, and sulphate fibers.

A subcommittee of the American Society for Testing Materials is working actively on methods and apparatus for testing insulating papers, as follows: procedure for measuring thickness, instruments for determining tearing strength and folding endurance, tests for moisture in impregnated cable paper and air resistance of insulating paper, development of methods of test for condenser paper, and study of baking conditions for heat test.

The Forest Products Laboratory is continuing fundamental studies of the structure and reactions of papers in the direction of finding improved test methods directly related to the usage requirements of papers. These studies include such considerations as fiber arrangement, stress-strain relations, and printing characteristics. The Technical Association and the American Paper and Pulp Association are assisting in this work through a fellowship. Information of this kind will no doubt assist materially in putting our paper testing methods on a sounder basis.

At the Bureau of Standards further study was made of the bursting test and of hygrometric conditions for paper testing, and the following projects were initiated: comparison of instruments devised for measurement of air permeability, applicability of the Flexometer, an instrument devised by the bureau for testing stiffness of textiles, to testing stiffness of paper and value of M.I.T. folding tester for general paper testing. The last is in cooperation with A.S.T.M.

Publication of Official Testing Methods

This committee again recommends that the association give consideration to improved form of publication for its official testing methods. In view of the revisions and additions constantly in progress, it appears that publication in loose leaf form is preferable to the present system of publications which cannot be revised readily, and therefore are soon obsolete as far as some of the testing procedure is concerned. Publication of separate prints of each method, on durable paper and of convenient size for the laboratory note book, would no doubt be generally welcomed. It is believed there would be sufficient demand for the methods to keep the cost of the separate prints within reasonable limits.

A Rapid Moisture Test for Wood*

Carl R. Blomstedt[1]

One of the most needed improvements in pulp and paper manufacture is a rapid determination of moisture. In charging the digester, the amount of wood (dry basis) is always an unknown quantity. If only an accurate method of determining the moisture content were available that would be a long step forward. It is believed that the following is an improvement over existing methods.

Apparatus

(1) A Spencer patent electric oven, new type "C," with suction pump having a capacity of at least 100 cubic feet per minute. (2) A Wiley mill, (3) A balance sensitive to 0.10 gram at a load of 1000 grams and (4) Capsules for comminuted wood, as furnished with the Spencer oven, and a closed container for weighing.

The Spencer Electric Oven

This oven is so designed as to permit a rapid current of preheated air to be passed through the sample contained in a wide, shallow cup or capsule with a closely woven metal bottom. This bottom is removable being held in place by a metal ring and affectually retains the material being dried, yet permitting free passage of air.

For highest efficiency it is essential that a large volume of air be passed rapidly through the sample. This is accomplished best by means of a good vacuum or pressure pump. Ten cubic feet per minute are sufficient, more are preferrable. Less increases the time of drying but is not otherwise objectionable except in the case of products easily altered by prolonged contact with hot air.

By reference to the accompanying diagramatic view of the oven, it will be seen that the air which is drawn or blown through the sample, first passses upward through an annular space where it is heated to the required temperature by a heating unit of resistance wire wound on an alundum core, thence past a thermometer bulb, then turning downward, passing through the sample to the vacuum line (or exit pipe). Temperature control is accomplished by means of a sliding contact rheostat placed in series with the heating unit of the oven.

Method

The sample of chips are ground in the Wiley mill, using the coarsest perforations. A 500 gram sample can easily be ground in five minutes. Of this, 100 grams is weighed into one of the capsules and placed in the oven, which should be adjusted already at the desired temperature. With a suction of 100 cubic feet per minute, and a temperature of 75 to 80 deg. C. complete removal of moisture is accomplished in five minutes. The

TABLE I

1 Temperature ° C.	2 Time Min.	3 Air Speed Cu. ft./Min.	4 Gms. loss in weight	5 Total Moisture, Grams	6 Per cent of total Moisture removed
105°	15	10	43.5	43.5	100.0
105°	15	20	43.3	43.5	99.6
105°	5	20	32.1	43.5	73.8
107°	5	20	36.3	47.6	76.4
105°	5	25	35.5	43.5	81.6
105°	5	30	39.5	43.5	90.8
103°	5	30	42.4	47.6	89.0
105°	5	40	40.3	43.5	92.7
103°	5	40	44.3	47.6	93.0
106°	5	50	50.4	52.0	96.9
104°	5	55	46.8	47.6	98.2
85°	5	70	45.1	46.0	98.0
75°	5	100	47.3	47.3	100.0

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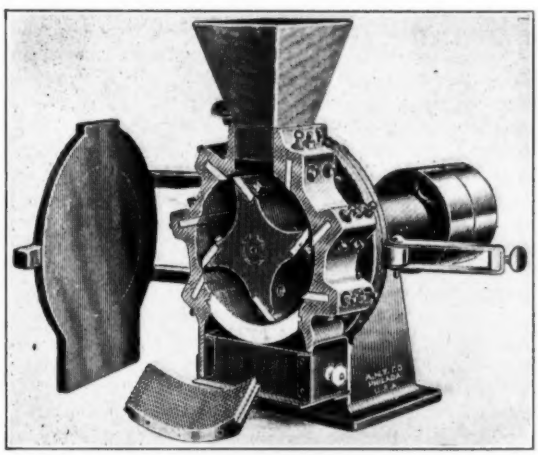
* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 17-19, 1931.
Contribution of the Alkaline Pulping Committee.

[1] American-Scandinavian Fellow, Bogalusa Paper Co., Bogalusa, La.

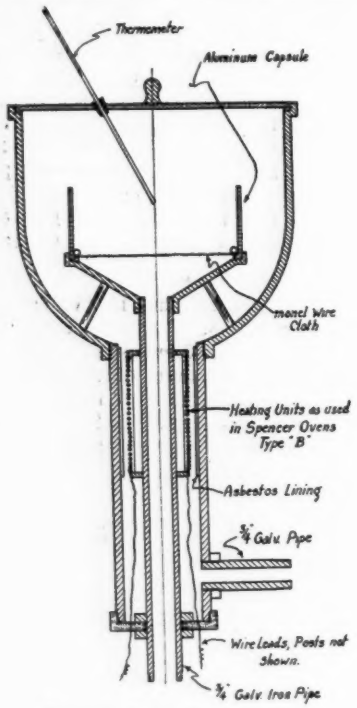


Wiley Mill

SPENCER OVEN

capsule and dried sample are then placed in the closed container and weighed. The loss of weight on the 100 grams sample is the per cent volatilized. For resinous woods, this will include some turpentine, etc., but it is not customary to distinguish between these and the moisture.

For suction a 4-inch Nash "Hytor" was employed. The rate of flow of air was determined by means of a Keuffel and Esser



SPENCER OVEN CROSS SECTION

anemometer. The temperature was regulated manually by means of an eight ohm rheostat (A. H. Thomas No. 8723). A mercoid switch would be an improvement.

To determine the effect of air velocity the following comparisons were made. In each case exactly 100.0 grams sample was used. In column 5 are given the loss on drying to constant weight at 105 deg. C. in the customary manner.

Temperature Effect

The effect of both particle size and air velocity are shown by tests in which the air velocity was 50 cubic feet per minute and the time seven minutes. Evidently the temperature has much less influence than air velocity. This is fortunate when drying materials that suffer decomposition with heat.

TABLE II
INFLUENCE OF TEMPERATURE AT CONSTANT AIR VELOCITY

Temperature °C	Loss in Weight, grams	Total Moisture, grams	Per cent of total moisture removed
106	49.9	51.0	97.8
90	49.5	51.0	97.0
80	50.6	51.0	99.0
70	41.9	51.0	82.1

TABLE III
EFFECT OF PARTICLE SIZE AND AIR VELOCITY ON DRYING

The following results of tests using 100 g. samples and five minutes time. For quick work the Wiley mill is a very necessary adjunct.

		TIME					
		Chips as received			Ground in Wiley Mill		
Temperature ° C.	Air velocity cu. ft./min.	Loss in wt.,gms.	Total moisture, gms.	% Total moisture removed	Loss in wt., gms.	Total moisture, gms.	% of total moisture removed
105	25	20.7	43.5	47.6	35.5	43.5	81.9
106	50	34.2	[illegible]2.0	65.7	50.4	52.0	97.0

That a larger sample can be dried effectively in somewhat longer time is shown by the following pair of tests using 500 gram sample, and 15 minutes time:

Temp. ° C.	Air velocity cu. ft./min.	Loss in wt., grams	Total moisture grams	% Total moisture removed
85	70	218.3	230.0	94.8
75	100	236.2	236.0	100.0

Summary

A rapid accurate method for determining moisture in wood using the Wiley mill and Spencer electric oven, New Type "C" has been described. By this method a test can be completed in ten to fifteen minutes. The same method can be used for other materials, such as paper, pulp, etc.

Special Metal Piping

There are certain processes, admittedly in the conduct of which the use of higher priced and more special piping is, in some instances at least, very advisable. On strong alum lines, for example, lead or hard rubber pipes give good results and the use of copper piping is frequently to be recommended for certain important pipe lines, particularly if high grade white papers are to be produced. One prominent mill of quality bonds reports securing the best results with copper piping in stock pumping service, but finds it pretty expensive for general use.

The coating of iron and steel pipes, inside and out, with lead is a possible alternative and has been resorted to with a good deal of success, apparently, for the reports on the use of this special piping are quite generally of a high order. One prominent paper producer has repiped two mills, so far as the stock and water lines are concerned, with either copper or this special lead coated piping, because of the acid condition of the river water supply and the necessary alum treatment of the water in settling tanks and filter beds. This has been done during the past two years and, from the experience gained, the paper maker reports; "Our experience to date indicates that the lead coated piping is supplying us with exactly the same service that the copper tubing is and at this time we are using lead coated piping almost entirely for our new extensions."

The Evaluation of Wood Pulp*

Recommended Modification of the Proposed Tentative Standard Beater Method Reported in Technical Association Papers, Series XIII, 1930, pp 143-144

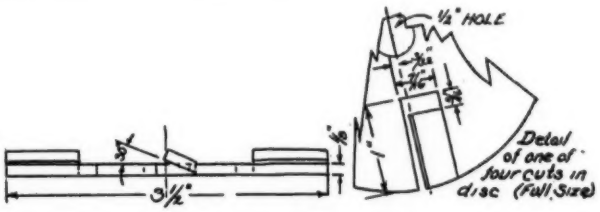
By W. F. Moore [1] and W. R. Willets [2]

I—Purpose of the Beater Method of Testing Pulp for Strength

It is recommended that this section be retained in its present form, except that the last paragraph should read: "The beater method embraces only the operation of the beater. Sampling, making of sheets and physical testing are assumed to be identical with the corresponding operations under the initial strength or pebble mill test methods.

II—Apparatus

(a) Disintegrator: The standard disintegrator shall consist of a vertically driven shaft rotating at approximately 1725 r.p.m. and bearing a disc designed according to Fig. 1.



FULL SIZE CUT OF BRASS DISC.

FIG. 1

(b) Beater: With controlled bed plate.

(c) Sampling cup.

It is recommended that sub-sections (a) and (b) under "II—Apparatus become sub-sections (b) and (c) respectively without change in wording, except in the new sub-section (c) where 2.5 per cent should be changed to 1.75 per cent air-dry consistency. Fig. 1 will become Fig. 2.

III—Test Specimen

It is recommended that the first sentence in the first paragraph be amended to read as follows:

> "The quantity of pulp required for a beater test is 400 grams of air-dry (360 grams of oven-dry) fiber or its equivalent,"

and that the rest of this section be retained in its present form.

IV—Procedure

It is recommended that the first paragraph be amended to read as follows:

> "Furnish of the beater. The beater should be furnished with the charge of pulp above mentioned and such a quantity of water (23 liters including any accompanying the pulp sample) as to give approximately a 1.75 per cent air-dry consistency. The pulp shall be torn up and disintegrated for 10 minutes in 10 liters of water using an electrically driven stirrer as described above. The pulp shall be added to the beater and sufficient water added to bring the total volume of water to 23 liters. The temperature of the stuff in the beater after all water has been added shall be 25 deg. C. (77 deg. F.) with a tolerance of 1 deg. C. (The water added to the pulp may be either cooled with ice or preheated to give the desired temperature)."

It is recommended that the remainder of this sub-section be retained in its present form.

Setting the bed plate: It is recommended that this sub-section be retained in its present form.

The taking of samples: It is recommended that (b) and (c) be amended as follows:

> "(b) Second set twenty minutes after setting bed plate excepting in the case of kraft pulps when the second set shall be taken twenty-five minutes after setting bed plate.
>
> "(c) Additional sets with at least fifteen minute intervals for sulphite and soda pulps and twenty minute intervals for kraft pulps, until a decided drop in bursting strength is observed, i.e., until after the maximum strength has been developed,"

and that the remainder of this sub-section be retained in its present form.

V—Reporting Results

VI—Care of the Beater

It is recommended that these sections be retained in their present form.

The Non-Fibrous Raw Materials Committee

Plans for the organization of this committee were begun in the Spring of 1930, in line with the Executive Committee's decision to reorganize committee work on a divisional basis covering all branches of pulp and paper manufacture. In effect, this committee is a subdivision of the Raw Materials Division of which Dr. John L. Parsons is the general chairman.

The committee hopes to direct its efforts toward the study of the sources, manufacture, transportation, storage, application, properties and economics of all raw materials of interest to pulp and paper manufacture of a non-fibrous nature other than fuels and water. Obviously its scope is broad and its plans ambitious. With its field thus defined and being both unaided and unhindered by precedent, its endeavors for many months and possibly longer must be of an experimental nature.

The first step was to organize a personnel, which, to be effective, had to be composed largely of experts with a knowledge of the breadth and technicalities of their own field of raw materials. In addition, these members had to be willing to serve the Technical Association with efforts and opinions unbiased and unprejudiced by their own company connections. The membership included Mr. R. T. Baldwin, Mr. O. L. Cook, Mr. F. J. Curtis, Mr. K. T. King, Mr. R. W. Howell, Mr. L. B. Lane and Mr. W. A. Nivling. Just recently Mr. Howell asked to be excused from further committee work, and Mr. O. W. Callighan kindly consented to fill his place for the balance of the year.

The main efforts of the committee to date have been directed in the preparation of a report covering the advancement or progress during 1930 in the economics, and manufacturing and handling technique of twenty-four of the major raw materials. That report is presented by the committee apart from this one. In addition to the progress report, the committee has sponsored a paper by Mr. O. L. Cook covering the committee's scope of activity for Lime and Limestone in the paper industry; and also a bibliography by R. T. Baldwin covering the use of chlorine as an agent to combat slime in paper mills.

The committee hopes that during the coming year it will outline all of the non-fibrous raw materials used to any extent in the paper industry. Possibly it can prepare a list of the lead-

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* Presented at the annual meeting New York, N. Y., Feb. 17-19, 1931, of the Technical Association of the Pulp and Paper Industry. Contribution of the Pulp Testing Committee.

[1] Junior member TAPPI, United States Testing Company, New York City.

[2] Junior member TAPPI, Western Electric Company, Kearny, New Jersey.

ing companies serving the industry with each commodity as well as data on the geographical distribution of sources of manufacture. It is hoped that it will be able to sponsor during the coming year a group of papers covering specific raw materials. Ultimately it hopes that it will prepare a set of specifications for each of the major materials within its field, but this, of course, will require many months of thought and work, and especially cooperation with the Non-Fibrous Materials Testing Committee and the Operating Division.

The committee is new. In a way, it is groping its way along. Its effectiveness and value will depend not only on the activity of its members, but also on the support and cooperation of the manufacturing, technical, and sales departments of all the companies supplying the trade with the raw materials covered by this committee. Obviously, comments opinions and constructive criticisms from the Technical Association membership at large, will always be a helping and appreciated factor.

ARTHUR C. DRESFIELD, CHAIRMAN.

Tappi Meeting At Everett, Wash.

The aims of the U. S. Forest Products Laboratory in assisting the pulp and paper industry with its technical problems was the subject of Dr. C. E. Curran's address before the spring meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, held at Everett, Wash., April 18 and 19. Dr. Curran brought to the delegates a report of what has been accomplished to date in the Government laboratory at Madison, Wisconsin, and his explanation of the operations of the model paper mill which has a 50-pound capacity but which meets all the problems and situations of a standard mill, was most interesting.

C. W. Morden Presides

C. W. Morden, of Portland, Ore., presided at the sessions which were held at the Monte Cristo hotel. Mr. Morden spent considerable time in Everett previous to the meeting, working with C. E. Ridgway, assistant secretary of the Puget Sound Pulp and Timber company, in preparation of the program of events.

The pulp and paper divisions of the association met separately in groups for informal discussion of problems on Saturday morning. J. V. Fagan, of the Puget Sound Pulp & Timber Co., presided at the pulp session, the program scheduled including "Three Phase Bleaching As Applied to Western Wood," discussed by R. B. Wolf of the Weyerhauser Timber company; "Proper Speed of Chippers," by S. Norman of the Sumner Iron Works, Everitt; "Some Remarks on the Counter Current Washing of Pulp," by C. R. Cash of the St. Regis Kraft company; "Bleachability Determination of Sulphite Pulp." by N. W. Coster of the Puget Sound Pulp and Timber Company; "Lime Recovery" by Ralph Reid of the St. Helens Pulp and Paper company; "Hot Acid Recovery in Sulphite Manufacture," by H. Lundberg of the G. D. Jenssen Company, Seattle.

Paper Division Subjects

The paper division subjects were discussed as follows "Controlling Paper Mill Wastes with Chlorine and Ammonia," by Brian L. Shera of the Wallace & Tiernan Company; "Western Cellulose," by Dr. E. Richter of Seattle; "Proper Care of Rubber-Covered Press Rolls," by G. Elmer Emigh of St. Helens Pulp and Paper company; "Wood Waste as a Fuel in Pulp and Paper Plants," by H. W. Beecher, of C. C. Moore & Co., Seattle. C. W. Morden presided at this session.

Buffet Luncheon Served

Following the morning meetings a buffet luncheon was served, after which Dr. Curran talked further of his special work and Ray Smythe, head of the Willamette Iron and Steel Company, of Portland, talked on equipment for pulp and paper mills, illustrating his talk with slides.

To Study Western Woods

Dr. Curran explained that $25,000 had been appropriated by the Government for the study of Western woods. The laboratories are interested in classifying various kinds of woods for their pulp producing values, efficiency in handling in the mills, and also in processes of cooking and their improvement and control. Another field of study being pursued is the processing of material after it leaves the digester. The final process of paper making is being studied from the viewpoint of operating on new and correct scientific methods. One of the problems is tracing variable factors from raw materials to the finished product to test their influence on production and also to test these factors in reverse from the finished product back to raw material," said the speaker.

He also told of the number of experts who are studying these special lines of work for the pulp and paper industry, saying that 200 men are employed in nine divisions of the Forest Products Laboratory at Madison, studying forest products, eighty of these being skilled chemists, technicians and engineers and 27 employed in the study of paper and pulp problems exclusively.

Pulp and Paper Mills Visited

Following the afternoon session the delegates visited the plants of the Everett Pulp and Paper company and the Puget Sound Pulp and Timber company.

The Banquet

A stag banquet was held at 6:30 with vaudeville entertainment furnished by local talent under the direction of Harry Stengel. Dan Duggan was toastmaster, calling on a number of Everett citizens and association members for brief remarks.

Trip to Mountain Resort

On Sunday a large number of the delegates were the guests of the Everett Pulp and Paper Company and the Puget Sound Pulp and Timber Company at the Big Four Inn, a resort which is located in the heart of the Cascade Mountains. The snowclad peaks standing forth in bold relief against the clear blue sky presented a beautiful setting for the outing. For nearly all of the men the visit to Big Four was their first trip up the Stillaguamish River.

Election at Fall Meeting

The fall meeting which will include the annual election of officers, will be held in Powell River, B. C. at which time the Powell River Company will be host for the occasion. The resolutions adopted thanked the Everett men for their cordial welcome and good time, mentioning particularly C. E. Ridgway and Carl E. Braun who were specially active in assisting Mr. Morden.

Amthor Mercury Column Gauge

The Amthor Testing Instrument Company of 309 Johnson Street, Brooklyn, N. Y., has recently started to manufacture a mercury column gauge. These are used for constant measurement of low pressure and vacuum in power plants. Many of these have been sold to paper mills for use in their power plants.

Section of the

COST DEPARTMENT

of the

American Paper and Pulp Association

Edited by T. J. Burke C. A. Director Cost Dept.

Internal Analysis and Interpretation of Accounting Information.

By A. J. Paget, Auditor, The Fairbanks Co.

It has always seemed to me, that the most important work that the industrial accountant has to perform is the preparation of accounting reports and statistics for the executives. These reports are, as a rule, the only means by which the store of facts relating to the business can be extracted from the accounts and made available for the management. If the reports are prepared promptly and show clearly and accurately the results of operation they will completely justify the accounting system and the accountant's place in the particular business.

Changes in Recent Years

To further justify the need for proper accounting reports we have but to consider the changes which have in recent years taken place in the size and form of business organizations. In the past, business units were for the most part small, in which the proprietor performed all of the important executive functions, being general manager, sales manager and production manager all in one. From his close touch with the various activities, he kept fully informed as to what was going on and accepted such simple accounting reports as were presented to him only as verification of results already known. Today the growth of business units and the general adoption of the corporate form with its division of responsibility for carrying it on, requires other means than personal contact and memory for efficient control. Each operating executive must be continuously and completely informed as to the activities under his direction and the results of all divisions both singly and in relation to each other must be made known to the chief executive. This is done by means of accounting reports, from which conclusions are drawn and important decisions made affecting the success or failure of the enterprise.

When we think and speak of accounting reports we visualize, almost instantly, the detailed profit and loss statement or operating report. This statement, showing as it does the manner in which capital has been employed and the results obtained through its use, is most important to the chief executive.

The dependence of management on accounting reports to assist it in directing the enterprise under its charge has required the industrial accountant to extend himself in the collection and presentation of the facts of business. As a result we find internal profit and loss statements and operating reports being prepared for executives in such detail that they open up and display for study every phase of the business.

Usually Prepared Monthly

Such reports are usually prepared monthly and show the results of operation not only for the current period but for the total to date as well. As a rule these reports start with the net sales to customers, often divided into various products, followed in the same order by the cost of goods manufactured and sold. After the cost we find the gross profit, also divided by products to correspond to the divisions of net sales. The cost of selling and distributing is next in order, showing the expenditures made or incurred for anywhere from 15 to 20 different classes of expense, necessary or otherwise, in getting the product from the factory to the consumer. The balance remaining, usually known as sales profit, is further reduced by applying thereto the cost of accounting and administration. These last mentioned items are often considerable in total and in all probability will be shown in as great detail as the selling and distributing costs. If the company happens to have other sources of income besides manufacturing and selling they too will be shown at this point in such detail as the importance of the various items warrants Before the net income can be determined the report will show deductions for interest on borrowed capital, depreciation and other reserves, including federal income taxes. The information described in all probability will be shown not only for the company as a whole, but for each of its operating divisions as well, such as branches or departments. This analysis may be carried further by showing the percentage relation of each item to the net sales total.

A report showing so much detail standing by itself, while interesting, does not clearly indicate whether or not results obtained are adequate. To learn this it is usual to measure the results by comparison with some other period or periods, such as the previous month or the corresponding month last year. By the process of comparison, it is possible to learn the extent of the departures from such periods and express them by means of increases or decreases. It is in connection with such increases or decreases that the real work of interpretation begins.

What Such Changes Indicate

Just what do such changes between reports indicate? In the first place the increases or decreases may or may

* N. A. C. A. Bulletin.

not indicate progress or lack of progress as regards sales, cost of sales and gross profit. If comparison is made with a poor previous year, results may seem very satisfactory; if made with an unusually good period, current results will not show to advantage. Such comparisons, imperfect as they are, do indicate changes, though the causes for them are not ordinarily apparent. Those in connection with net sales may result from selling more or less physical goods, changes in the character of the sales dollar and lower or higher sales prices. The cost of goods sold may be affected by some of the causes which affect sales and in addition be influenced by increases or decreases in the cost of manufacturing, resulting from higher or lower raw material cost, factory efficiency and changes in factory volume. The cost of sales may be further affected by the high or low cost of goods sold from previous years' inventories. The gross profit and gross ratio are likewise affected. The selling and distributing costs when compared may be found to move in an entirely different direction from the net sales dollar volume, some decreasing when sales are apparently increasing and others increasing when sales are declining. On the other hand, we are likely to find that certain expenses remain fixed, although they are of a variable nature while sales dollar volume has moved down considerably. If we study the percentage ratios we find the same confusion and absence of uniform movement.

It must be plain from the foregoing that a mere comparison of current results with corresponding past periods will not ordinarily measure such results correctly, nor will they reveal truly the causes for the changes between periods compared. To learn whether or not results are satisfactory and the reasons why they are or are not, comparisons should be made with either a standard performance specially constructed, a past performance both satisfactory and normally possible to duplicate, or a budgeted performance. Such standards are not, I believe, generally used as a basis for comparison by the industrial accountant with the result that the causes for satisfactory or unsatisfactory results are not disclosed, making it necessary for executives to analyze such reports further. This they do by adjusting the accountant's figures so as to give expression to the changes constantly taking place and with which they are familiar, such as: demands for newer modifications to replace older ones, the issuance of new price lists, changes in design, changes in purchase—cost of materials used in the product and changes in marketing both new and old products.

More Useful to the Executives

In pointing out the necessity for more complete accounting reports I do so only in the belief that reports of this nature can be made more useful to the executives. The presentation of reports by the accountant, which include all the information previously described, will in no way relieve the executive of any of his proper functions. Nor can such reports be successfully substituted for executive judgment. They can, however, be prepared in such a way as to anticipate the executive's needs and by so doing relieve him of considerable detail, thus permitting him to economize his time, arrive at correct conclusions and exercise promptly his experienced judgment.

The company with which I am connected has for some years prepared its report of operations in considerable detail so that it covers the company as a whole and each of its distributing divisions as well. Moreover, we have reduced every item on the report to a percentage of net sales. These reports in spite of their detail have always been ready for the executives on or about the 15th day of each month. When volume, prices and costs were fairly stationary these reports proved quite satisfactory, but just as soon as any or all of the profit and loss factors began moving up or down, there arose the necessity for further analysis.

To meet these changing conditions we have for some time been preparing each month a set of supplementary reports, the purpose of which is to account for the causes responsible for the changes in operating results. These causes as we find them are: greater or smaller physical sales volume; higher or lower sales prices; changes in manufacturing efficiency at each of our two factories; increase or decrease in market price of manufacturing materials; higher or lower costs due to changes in factory volume; increase or decrease in fixed selling expenses; increase or decrease in normal variable selling expenses; excess increase in variable selling expenses; changes in administrative and accounting expense; interest on borrowed capital; reserves for depreciation and reserves for bad debts. Other causes for changes in net profit result from increased or decreased other income such as interest, rents, etc. The amount contributed by each of the aforementioned toward the change in net profit from a standard based on a previous satisfactory operating period, is set down on a report which we call "Accounting for Changes in Net Profit."

This report is prepared on a sheet 17 x 11 inches with a total column and a column for each of the company's distributing divisions. The first information shown is the net profit before taxes for the current period and the net profit for the standard period. The difference between these two is extracted and is the amount to be accounted for.

Necessary to Use Fixed Bases

In accounting for the loss or gain in gross profit due to volume and price change it is necessary to use a fixed base. This is furnished in our case by the cost of sales. The reason we use the cost is because the products we sell are mainly of our own manufacture and are billed to our sales branches by our factories at prices which remain fixed from year to year. For each of the products handled the various modifications—that is, types and sizes—do not vary much in their relation to each other in the product groups and as a result we have little or no change in profit due to change in the character of the sales dollar.

The loss or gain of gross profit due to volume change is found by taking the cost of sales for each product and comparing it with the standard cost of sales for each product. The difference between the two measures the physical increase or decrease in volume at cost value. To the increase or decrease we apply the standard gross profit ratio which gives us the increase or decrease in gross profit due to volume change. For example, the standard cost of sales volume is $1,000 and the standard gross profit ratio 15 per cent. The current cost of sales volume is $2,000 and the gross profit ratio 20 per cent. Between the two cost volumes there is a difference, an increase of $1,000 to which we apply the standard ratio 15 per cent which gives us an increased gross profit due to volume of $150.

The increase or decrease of gross profit due to price changes is found by measuring the current gross profit ratio against the standard gross profit ratio and applying the difference to the current cost volume. To illustrate, the standard gross profit ratio is 15 per cent; the current gross profit ratio 20 per cent, an increase of 5 per cent. We then apply the 5 per cent to the current cost volume $2,000 which gives us an increase of gross profit due to price of $100.

Besides sales volume and sales price, the gross profit is affected by manufacturing costs also. For our purpose, as previously mentioned, we break this cause for change into three sub-causes; manufacturing efficiency, manufac-

turing material cost, and manufacturing volume. The extent to which each of these contribute to the loss or gain of gross profit is learned from our factory budgets. At each of our factories we operate a complete manufacturing budget and from the comparisons of actual and budgeted costs we learn the increase or decrease in cost compared with standard. These changes are reflected in our manufacturing reports, which show first, the budgeted cost, or what manufacturing should cost, plus or minus all variations from standard in detail by cost elements and finally the actual cost, the sum of the last two.

Variation in Cost Materials

The variations in material cost are found by comparing current purchase cost of material with standard purchase cost. Manufacturing efficiency is determined by comparing budgeted cost with actual amounts expended. Increased or decreased manufacturing volume is ascertained by comparing standard general burden absorption against actual burden after adjusting for dollar increases in fixed burden expense. Under the head of each factory, the extent to which manufacturing efficiency, material cost and production volume affects gross profit loss or gain, is set down on the "Accounting for Changes in Net Profit" report.

At this point a total is made for the losses or gains due to sales volume, sales price and manufacturing cost and shows the total increase or decrease ot gross profit between the standard period and the current period.

Other losses or gains in net profit result from increases or decreases in the following:

1—Fixed Selling Expense (Salaries, Insurance, Taxes, Rents, etc.)
2—Administrative and Accounting Expense.
3—Interest on borrowed capital.
4—Branch office depreciation.
5—Bad Debts.
6—Other Income.

The extent of loss or gain on each is determined by direct comparison of standard expenditures against current actual expenditures. The losses or gains are then set down on the report, each being shown separately.

Variable Selling Expenses

A further cause for loss or gain in net profit is the variation in variable selling expense. Under this heading are included all selling expenses which have a tendency to move up or down with sales volume. In fixing our standard for variable sales expense, we find the percentage ratio to standard cost of sales volume. To determine the loss or gain, we apply this ratio to the current cost of sales, the result giving the normal variable expense for the particular volume. We then measure the dollars of normal variable selling expense against the standard normal dollars, the increase or decrease being set down as a loss or gain. I might add that a loss of profit on normal expense is to be expected when volume is expanding, it usually requiring more sales expense to produce more sales. Besides the normal expense loss or gain, there is often a loss or gain due to excess variable selling expense, represented by the amount expended over the standard allowance. To illustrate how this works out, let us say that the standard cost of sales volume is $400,000 and the variable sales expense ratio is 5 per cent, bringing the standard variable expense to $20,000. In the current period we will assume that the cost of sales volume is $500,000 and the total variable sales expense is $30,000. Applying the standard ratio to the current volume we get an allowable sales expense of $25,000 indicating an increase or loss over standard of $5,000. This increase, however, is justified by the increase in volume. We then compare the normal expense $25,000 with the actual expense and find a $5,000 excess increase in variable expense over standard.

When all the losses or gains from standard have been determined and set down on the "Accounting for Changes in Net Profit" report it will show as in Figure 1.

At the bottom of this report we show the increases and decreases in sales volume at current price levels. This information is shown for each product for the company in total and for each distributing division

Ordinarily it is customary to measure sales volume in one period against the sales volume in another, the difference being considered an increase or decrease. As a matter of fact sales volume may have actually increased while the comparison shows a decrease, the dollar decline being due entirely to a reduction in sales prices. On the other hand, an actual decrease in sales volume may be covered up and made to appear as an increase as a result of higher sales prices.

THE FAIRBANKS COMPANY
ACCOUNTING FOR CHANGES IN NET PROFIT
YEAR ENDING DECEMBER 31, 1930

	Total
NET PROFIT (Before Taxes) Current	
Standard	
Net Increase or Decrease in Profit	
CHANGES IN GROSS PROFIT DUE TO INCREASED OR DECREASED VOLUME:	
Valves	
Dart Unions	
Trucks	
Barrows	
TOTAL	
CHANGES IN GROSS PROFIT DUE TO PRICE CHANGES:	
Valves	
Dart Unions	
Trucks	
Barrows	
TOTAL	
CHANGES IN FACTORY PROFIT:	
Binghamton	
Due to Increased or Decreased Factory Efficiency	
Due to Increased or Decreased Cost of Raw Materials	
Due to Increased or Decreased Factory Volume	
TOTAL	
Rome	
Due to Increased or Decreased Factory Efficiency	
Due to Increased or Decreased Cost of Raw Materials	
Due to Increased or Decreased Factory Volume	
TOTAL	
Changes in Profit due to Increase in Fixed Selling Expenses (Salaries, Insurance, Taxes, Rents)	
Changes in Profit due to Increase in Variable Selling Exp.	
Changes in Profit due to Excess Inc. in Variable Sell. Exp.	
Changes in Profit due to Decrease in Administrative Exp.	
Changes in Profit due to Decrease in Int. on Borrowed Cap.	
Changes in Profit due to Increase in Branch House Depr.	
Changes in Profit due to Increase in Allow. for Uncoll. A/CS.	
Changes in Profit due to Increase in Other Income	
TOTAL INCREASED OR DECREASED PROFIT	
INCREASED OR DECREASED VOLUME (At Current Sales Prices)	
Valves	
Dart Unions	
Trucks	
Barrows	
TOTAL	

FIGURE 1

In an industry where prices are made by competition rather than based on cost, the effect of price changes on volume should be given consideration and carefully measured. To assume that volume is increasing or decreasing simply by comparing the sales of two periods results in incorrect conclusions and is likely to cause corrective action to be taken in the wrong direction. Furthermore, there is the likelihood of attempting to reach impossible standards. If we are operating on a lower price level, it is usually unreasonable to expect to obtain the same dollar volume which we enjoyed at a higher level. A knowledge of the effect of price changes on volume will decide whether the recovery of lost gross profit is to be made by more direct action on the part of the sales force or a change in marketing policy.

One thing we all like to accomplish and that is to get attention for our reports. We know that executives as a rule will not give hours to studying long detailed reports unless these reports can be made interesting as well as informative. I find this can be done by preparing a condensed report on the smallest possible size sheet, usually 8½ x 11, which gives a comprehensive summary of the facts shown on the larger detailed statement. To get attention for the "Accounting for Changes in Net Profit" report, we boil down all the details I have described into groups, with the result that a complete picture of all the causes for changes in net profit can be learned in less than ten minutes. This smaller report is attached to the detailed statement so that immediate reference can be made thereto if desired.

On the summary certain other information is added which is now shown on the larger report, information regarding the percentage of increase or decrease in sales cost volume over the standard, which of course disregards price changes. This is shown in the form of a table, each distributing division being set down first, a column for total products next and then one for each individual product. The percentage changes from standard are set in for each branch and under each product.

These supplementary reports have brought out certain information which we would not know by using the ordinary reports. We have found for instance during the present year that certain branches showed considerable decrease in volume when compared with the previous year. Upon breaking the figures down as described, we learned that volume was in reality ahead of the previous year, the dollar volume loss being due entirely to price reductions over which these branches had no control. Another illustration of the value of these reports has been demonstrated in connection with the selling and distributing costs. With the decrease in dollar volume, expense ratios increased considerably although dollar expenditures showed decreases. A surface examination of sales volume, expense ratios and expense dollars failed to indicate whether or not expenses were out of line with volume. When we unscrambled the figures and measured them by the standards, we found the true lag in sales expense both in dollars and percentage. As regards this sales expense lag, we do not in our reports express any opinion as to the amount, simply stating the facts and leaving it to the executive to decide whether or not it is out of line with operations.

Failure to Get Manufacturing Volume

Since net profit is for the most part what remains of gross profit, the effect of higher manufacturing costs on the reduction of gross profit is likely to be considerable. During the time we have been using these reports it has been disclosed that a good part of our higher costs were due to failure to obtain manufacturing volume for our factories. By learning the effect of small volume on gross profit, we know, besides the cost of doing business, something which we never have known—that is, the cost in dollars of not doing sufficient business.

The part which our factory budgets play in obtaining our analysis of results has been described, but it may be of interest to know the other uses made of such budgets in controlling costs. With these budgets we have been able to keep our controllable expense in line to such an extent that the actual expenditures have not varied more than 2 per cent from the budget. This has been accomplished to a large extent by furnishing the foremen with weekly comparison of budget expense allowance and actual expense. The foremen have shown such interest in these reports that they come to the Cost Department, often before the reports are ready, in order to obtain them.

Outside of the accounting for changes in net profit most of our analyses are made currently so that we find ourselves prepared at all times to furnish detailed information and answer immediately any question which may be asked by the executives. At our factories we know each month how much profit each factory has earned on the month's production, how much profit is tied up in inventories, and by measuring profit on shipments with profit on production we have a good check on the accuracy of the factory profit and loss statements.

Current statistics are prepared at both our factories which show the relation of production and usage of finished goods and finished parts. These items, along with stores and work-in-process, are also compiled monthly on an annual turnover basis which assists in no small way in controlling inventories, guarding against over-production, and delays in reporting finished production orders to the Cost Department.

Must Be Absolutely Correct

In the preparation of our monthly reports at the general office every care is taken to see that they are absolutely correct before they are released. Towards this end, a very careful comparison is made of gross profit spread by branches and products, with the result that we have a continuous check on the accuracy of our cost of sales figures. Another advantage of this is that the results of the final month's operations are not distorted by unusual corrections for inventory adjustments. In recent years, these have amounted to less than one-half of one per cent, based on the average yearly cost of sales volume.

Besides controlling our manufacturing operations by means of analyses and statistics, selling operations and inventories, we keep a close watch over our receivables and measure our results in this direction also. Each month we prepare an analysis of our outstanding accounts by months, not only in dollars, but by number of balances also. Our collections are marked off daily and each week's progress noted. At the end of each month, we calculate the ratio of the accumulated collections to the total amount collectible, that is, the outstanding receivables of the previous year plus the net sales to date. With these analyses, we have been successful during the past year in collecting 96 per cent of our total collectibles after allowing for all accounts not due at the close of the year on the basis of our terms of sale.

It may appear from the analyses which I have described that a tremendous amount of expensive detail work is involved in the gathering and presentation of accounting information and it might be questioned whether or not a good part of it is not stale before it can be used. In answer to this, I can say that we have ready by the 10th of each month a complete balance sheet and a condensed profit and loss statement, both for the month and to date, with supporting expense schedules including the "Accounting for Changes in Net Profit" report and an analysis of sales by salesmen, zones, products and sales to customers in each zone. All of this is accomplished at a payroll cost for the general accounting office of less than 1 per cent of the net sales.

Must Be Flexible

Because of the complexity of present day business conditions, any system of accounting and accounting reports must be flexible and must be ready to meet the constantly changing demands and needs of management. It has only been by careful study of existing conditions and by application of simple as well as logical methods of control that we have evolved our present system of internal analysis and interpretation of accounting information.

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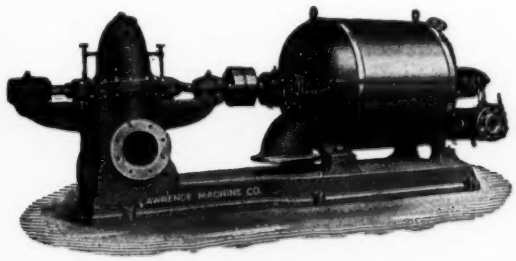

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IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING APRIL 25, 1931

SUMMARY

Cigarette paper.....106 cs.
Wall paper.....29 bls., 23 cs.
Paper hangings.....1 truss, 2 bls., 1 cs.
News print.....8065 rolls
Printing paper.....63 rolls, 70 bls., 103 cs.
Wrapping paper.....1 cs.
Filter masse.....150 bls.
Filter paper.....7 cs.
Drawing paper.....47 cs.
Litmus paper.....2 cs.
Gold coated paper.....2 cs.
Metal coated paper.....29 cs.
Baryta coated paper.....3 cs.
Surface coated paper.....5 cs.
Photo paper.....2 cs.
Coated paper.....1 cs.
Colored paper.....4 cs.
Basic paper.....1 cs.
Tissue paper.....4 cs.
Decalcomania paper.....64 cs.
Transfer paper.....2 cs.
Envelopes.....2 cs.
Writing paper.....13 cs.
Adhesive paper.....5 cs.
Wafer paper.....8 cs.
Wood pulp paper.....17 cs.
Paper board.....8 cs.
Straw boards.....63 rolls
Miscellaneous paper.....20 bls., 62 cs.

CIGARETTE PAPER

Standard Products Corp., Ile de France, Havre, 79 cs.

Liggett & Myers Tobacco Co., Ile de France, Havre, 27 cs.

WALL PAPER

Bush Service Corp., Statendam Rotterdam, 1 cs.

Universal Car Loading Co., Bremen, Bremen, 2 cs.

International F'd'g Co., Mauretania, Southampton, 1 cs.

Kensington Wallpaper Co., Karachi Maru, Hamburg, 25 bls.

Irving Trust Co., Deutschland, Hamburg, 19 cs.

J. E. Bernard & Co., Deutschland, Hamburg, 4 bls.

PAPER HANGINGS

A. C. Dodman, Jr., Inc., Baltic, Liverpool, 2 bls.

Whiting & Patterson Co., Inc., Mauretania, Southampton, 1 cs., 1 truss.

NEWS PRINT

W. H. Bell, Markland, Liverpool, N. S., 6259 rolls.

Perkins, Goodwin & Co., Dresden, Bremen, 42 rolls.

Jay Madden Corp., Dresden, Bremen, 456 rolls.

Jay Madden Corp., Schenectady, Jango, 445 rolls.

Perkins, Goodwin & Co., Milwaukee, Hamburg, 222 rolls.

Baldwin Paper Co., Inc., Deutschland, Hamburg, 240 rolls.

——, Deutschland, Hamburg, 220 rolls.

Perkins, Goodwin & Co., Deutschland, Hamburg, 181 rolls.

PRINTING PAPER

F. L. Kramer & Co., Amer. Merchant, London, 4 cs.

Japan Paper Co., Dresden, Bremen, 20 cs.

E. Dietzgen & Co., Statendam, Rotterdam, 40 cs.

Steffens Jones Co., H. Jaspar, Antwerp, 8 cs.

Keuffel & Esser Co., Pr. Roosevelt, Hamburg, 11 cs., 63 rolls.

Perkins, Goodwin & Co., Deutschland, Hamburg, 70 bls. 20 cs.

WRAPPING PAPER

Yardley & Co., Caronia, London, 1 cs.

FILTER MASSE

P. H. Petry & Co., Karachi Maru, Hamburg, 150 bls.

FILTER PAPER

H. Reeve Angel & Co., Inc., Amer. Merchant, London, 6 cs.

C. Schleicher Schull Co., Bremen, Bremen, 1 cs.

DRAWING PAPER

Favor Ruhl & Co., Minnetonka, London, 7 cs.

Keuffel & Esser Co., Pr. Roosevelt, Hamburg, 33 cs.

J. Henschel & Co., Deutschland, Hamburg, 7 cs.

LITMUS PAPER

Pfalz & Bauer, Deutschland, Hamburg, 2 cs.

GOLD COATED PAPER

F. Murray Hill Co., Dresden, Bremen, 2 cs.

METAL COATED PAPER

M. A. Kerner, Milwaukee, Hamburg, 2 cs.

——, Milwaukee, Hamburg, 11 cs.

K. Pauli Corp., Deutschland, Hamburg, 10 cs.

Globe Shipping Co., Deutschland, Hamburg, 1 cs.

E. B. Baehr, Deutschland, Hamburg, 5 cs.

BARYTA COATED PAPER

Globe Shipping Co., Bremen, Bremen, 3 cs.

SURFACE COATED PAPER

International Trust Co., Deutschland, Hamburg, 2 cs.

Phoenix Shipping Co., Deutschland, Hamburg, 3 cs.

PHOTO PAPER

J. H. Schroeder Banking Corp., Bremen, Bremen, 2 cs.

COATED PAPER

W. A. Foster & Co., Minnetonka, London, 1 cs.

COLORED PAPER

M. A. Kerner, Milwaukee, Hamburg, 1 cs.

National Freight F'd'g Co., Deutschland, Hamburg, 3 cs.

BASIC PAPER

Globe Shipping Co., Bremen, Bremen, 1 cs.

TISSUE PAPER

Yardley & Co., Caronia, London, 1 cs.

W. J. Byrnes & Co., Mauretania, Southampton, 2 cs.

Bush Service Corp., Mauretania, Southampton, 1 cs.

DECALCOMANIA PAPER

Phoenix Shipping Co., Dresden, Bremen, 4 cs.

B. F. Drakenfeld & Co., Baltic, Liverpool, 31 cs.

L. A. Consmiller, Bremen, Bremen, 7 cs.

C. W. Sellers, Bremen, Bremen, 7 cs.

C. W. Sellers, Deutschland, Hamburg, 15 cs.

TRANSFER PAPER

Fusch & Lang Manfg. Co., Dresden, Bremen, 2 cs.

ENVELOPES

Japan Paper Co., Dresden, Bremen, 2 cs.

WRITING PAPER

Coenca Morrison Co., Ile de France, Havre, 3 cs.

Guibout Freres, Olympic, Southampton, 6 cs.

J. Wanamaker, Deutschland, Hamburg, 4 cs.

ADHESIVE PAPER

Heemsoth Basse & Co., Statendam, Rotterdam, 5 cs.

WAFER PAPER

Ipex, Statendam, Rotterdam, 8 cs.

WOOD PULP PAPER

J. Beckhard, Statendam, Rotterdam, 17 cs.

PAPER BOARD

Colmar Paper Co., H. Jaspar, Antwerp, 8 cs.

STRAW BOARDS

C. H. Powell & Co., Statendam, Rotterdam, 63 rolls.

MISCELLANEOUS PAPER

Yardley & Co., Caronia, London, 1 cs.

D. F. Young, Dresden, Bremen, 13 cs.

Keuffel & Esser Co., Statendam, Rotterdam, 12 cs.

Keller Dorian Paper Co., Ile de France, Havre, 4 cs.

Japan Paper Co., Ile de France, Havre, 7 cs.

R. F. Downing & Co., Ile de France, Havre, 7 cs.

S. Oppenheimer & Co., Milwaukee, Hamburg, 3 cs.

Henschel Naeve & Co., Bremen, Bremen, 20 bls.

F. C. Strype, Deutschland, Hamburg, 2 cs.

Johaneson, Wales & Sparre, Inc., Augustus, Genoa, 13 cs.

RAGS, BAGGINGS, ETC.

International Accep. Bank, Karachi Maru, Hamburg, 142 bls. rags.

Katzenstein & Keene, Inc., Saco, Antwerp, 58 bls. rags.

Banco Coml. Italiana Trust Co., Dresden, Bremen, 17 bls. rags.

Irving Trust Co., H. Jaspar, Antwerp, 43 bls. rags.

E. Mayer, Pr. Roosevelt, Hamburg, 45 bls. rags.

——, Examelia, Alexandria, 84 bls. bagging.

R. Canovai & Son, Cabo Villano, Leghorn, 54 bls. rags.

S. Birkenstein & Son, Cabo Villano, Barcelona, 108 bls. rags.

V. Galaup, Carnia, Leghorn, 84 bls. rags.

E. J. Keller Co., Inc., Artigas, ——, 67 bls. bagging.

OLD ROPE

Brown Bros., Harriman & Co., Bannack, Cardiff, 56 coils.

Anglo South American Trust Co., Baltim, Liverpool, 64 coils.

——, Manuel Calvo, Vigo, 52 coils.

WOOD PULP

Brown Bros., Harriman & Co., Karachi Maru, Hamburg, 472 bls. wood pulp, 71 tons.

Atterbury Bros., Inc., Fred. VIII, Oslo, 250 bls. mechanical pulp, 50 tons.

Castle & Overton, Inc., Statendam, Rotterdam, 471 bls. wood pulp.

M. Gottesman & Co., Inc., Schenectady, Stockholm, 1200 bls. sulphite, 203 tons.

A. Giese & Son, Milwaukee, Hamburg, 14 bls. wood pulp.

M. Gottesman & Co. Inc., Coahoma County, Rotterdam, 275 bls. sulphite, 21 tons.

E. J. Keller Co., Inc., Pr. Roosevelt, ——, 360 bls. wood pulp, 55 tons.

Castle & Overton, Inc., Deutschland, Hamburg, 562 bls. wood pulp, 112 tons.

E. M. Sergeant & Co., Bergensfjord, Oslo, 186 bls. wood pulp.

WOOD PULP BOARDS

Lagerloef Trading Co., Schenectady, Hango, 35 rolls, 59 bls, 20 tons.

WOOD FLOUR

State Chemical Co., Statendam, Rotterdam, 300 bags.

Trust Co. of New Jersey, Statendam, Rotterdam, 400 bags.

——, Bergensfjord, Frederickstad, 100 bags.

BOSTON IMPORTS

WEEK ENDING APRIL 25, 1931

G. F. Malcolm & Co., Baltic, Liverpool, 15 cs. tissue paper.

Perkins, Goodwin & Co., Schenectady, Gothenburg, 344 bls. kraft pulp; 381 bls. sulphate.

The Borregaard Co., Inc., Schenectady, Gothenburg, 47 rolls paper.; 750 bls. chemical pulp.

J. Andersen & Co., Schenectady, Gothenburg, 3000 bls. sulphite.

E. M. Sergeant & Co., Schenectady, Gothenburg, 167 bls. kraft pulp.

Johaneson, Wales & Sparre, Inc., Schenectady, Gothenburg, 172 bls. kraft pulp.

——, Schenectady, Hango, 44 rolls news print.

——, Schenectady, Hango, 3254 bls. sulphite, 546 tons.

——, Schenectady, Hango, 4733 bls. sulphate, 862 tons.

Lagerloef Trading Co., Schenectady, Hango, 170 bls. sulphate, 28 tons.

J. Andersen & Co., Schenectady, Stockholm, 300 bls. sulphite, 50 tons.

Parsons & Whittemore, Inc., Schenectady, Stockholm, 100 rolls news print.

(Continued on page 54)

Cotton and Paper Rolls
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Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

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The Textile-Finishing Machinery Company
PROVIDENCE, R. I.

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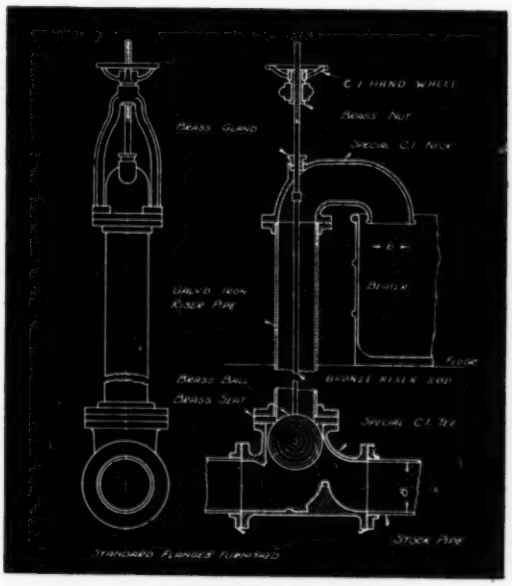

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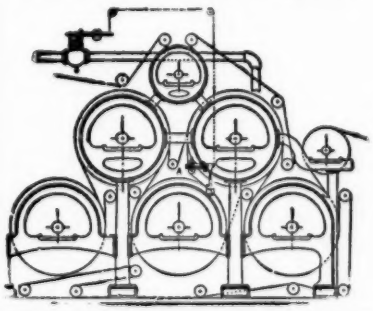

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W. F. PICKLES Buckland, Conn.

Imports of Paper and Paper Stock

(Continued from page 52)

BALTIMORE IMPORTS

WEEK ENDING APRIL 25, 1931

Congoleum Nairn Co., Saco, Antwerp, 1052 bls. rags.

NORFOLK IMPORTS

WEEK ENDING APRIL 25, 1931

English China Clays Sales Corp., Artigas, Liverpool, 50 cks. china clay, 26 tons.
New York Trust Co., Saco, Antwerp, 18 bls. bagging.
Darmstadt, Scott & Courtney, Saco, Antwerp, 131 bls. bagging.
Katzenstein & Keene, Inc., Saco, Antwerp, 82 bls. bagging.

PHILADELPHIA IMPORTS

WEEK ENDING APRIL 25, 1931

F. Weber & Co., Excelsior, Genoa, 2 cs. paper.
S. Birkenstein & Son, Excelsior, Marseilles, 55 coils old rope.
J. A. Steer & Co., Excelsior, Marseilles, 175 bls. rags.
J. A. Steer & Co., Exeter City, Bristol, 140 coils old rope.
J. W. Hampton, Jr., Inc., Exeter City, Bristol, 264 tons china clay.
E. J. Keller Co. Inc., Vincent, ——, 88 bls. rags.
E. J. Keller Co., Inc., Ala, ——, 170 bls. new cuttings.

PORTLAND, ME., IMPORTS

WEEK ENDING APRIL 25, 1931

Waterfalls Papermills Co., Schenectady, Gothenburg, 5285 bls. dry pulp.
——, Schenectady, Hango, 4635 bls. sulphite, 781 tons.
——, Schenectady, Hango, 1735 bls. sulphate, 147 tons.
Lagerloef Trading Co., Schenectady, Hango, 1870 bls. sulphite, 330 tons; 934 bls. sulphate, 163 tons.

International Mill Damaged by Fire

[FROM OUR REGULAR CORRESPONDENT]

CORINTH, N. Y., April 27, 1931.—Fire breaking out in the wood department of the Hudson River mill of the International Paper Company this week caused damage estimated at about $35,000, all of which was fully covered by insurance. The flames spread rapidly and enveloped the sulphite tower before the firemen could bring them under control. All fire departments from neighboring villages were called out in fighting the blaze which was the largest experienced by this section in several years. It was only through the valiant efforts of the firemen that the big mill structure containing valuable machinery was saved.

The flames from the sulphite tower attracted curious crowds from all sections in the district. Despite the fact that the wood department and sulphite tower are important in the primary processes of paper manufacturing it was learned that no cessation in operations at the mill will result from their destruction. The company announced that plans would be made immediately relative to the reconstruction of the burned sections. Workers thrown out of employment by the fire will be given work on the reconstruction project. A strong wind is believed to have been largely instrumental for saving other structures in the paper mill yard and the huge pulpwood supply. About 1,000 workers are now employed at the local mill. The blaze occurred while the annual session of the board of directors was being held here.

The plant consists of about twelve buildings and those destroyed were erected in 1898. About fifty men were employed steadily in the burned structure. It was learned that arrangements have been made whereby the necessary materials will be supplied the main mill while the reconstruction program is under way. The main plant houses ten newsprint machines and is among the largest under control of the company. The blaze is believed to have originated from an over-heated electric motor in the wood department.

Goes With Oxford-Miami Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., April 28, 1931.—Ernest Bush, for many years superintendent of the Chemical Paper Manufacturing Company but whose resignation became effective last week leaves this week to become general superintendent of the Oxford-Miami Paper Company of West Carleton, O. Mr. Bush was presented with a gold watch by his fellow employees Saturday morning, also a set of golf clubs. His wife and two sons plan to remain in Holyoke for the immediate present.

R. S. Kellogg Discusses News Print Situation

There was an excellent attendance at the regular weekly meeting and luncheon of the Eastern Division of the Salesmen's Association of the Paper Industry, held at George's Restaurant, New York, on Tuesday, including many leading trade association executives, to hear the guest speaker, R. S. Kellogg, secretary of the News Print Service Bureau, discuss the statistical position of the news print industry.

Mr. Kellogg used several charts to illustrate his address, one of which demonstrated twelve months moving average of consumption and mill stocks, and showed how consumption had gradually been declining and stocks going up. Another chart showed the influx of new machines in North America since 1919, which totalled 113 in the twelve year period. He mentioned, however, that there were no new machines in sight at the present time.

The speaker attributed the decline in consumption to be due to some extent to the gradually decreasing sizes of the Sunday newspapers. While radio broadcasting had taken away some national advertising, it had not affected circulation, he declared. In view of the involved position of the news print industry at present, Mr. Kellogg's address was most timely and illuminating, and was thoroughly enjoyed and appreciated by all present.

Nordstrom-Dresser Merger Planned

Arrangements have been made to consolidate the Merco Nordstrom Valve Company, of San Francisco, Cal., and the S. R. Dresser Manufacturing Company, of Bradford, Pa. The Nordstrom company manufactures lubricated plug cock type valves and the Dresser company makes pipe line equipment. The new company resulting from the consolidation will have total assets of $5,913,482. Total capital stock and surplus will amount to $5,467,974, of which $3,202,500 will be represented by capital stock and $2,265,474 by surplus.

G. R. Burkhardt Heads White & Wyckoff

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., April 28, 1931.—At a directors' meeting of the White and Wyckoff Manufacturing Company held on Wednesday, April 22, vice-president George R. Burkhardt was elected president to succeed the late J. Lewis Wyckoff.

Edward N. White continues as Chairman of the Board of Directors and Treasurer.

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Bleached Sulphite

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Bleached Sulphite

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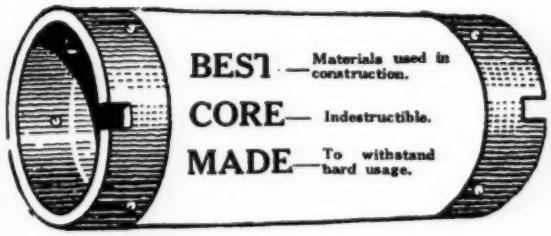

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of Directors and Treasurer.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, April 29, 1931.

Trading in the local paper market was moderately active during the past week. Demand for the various standard grades of paper was somewhat irregular. Sales forces of the leading paper houses are mostly optimistic, however, and are looking forward to the future with confidence. Prices are generally holding to previously quoted levels.

There were no further developments in the news print situation. Production in North America was maintained at approximately 63 per cent of capacity during the past week, according to information gathered by the News Print Service Bureau. Shipments went forward at 68 per cent of rating. Stocks at the mills are not unduly excessive.

Conditions in the paper board market are improving. Box board mills are being operated at 68 per cent of capacity. The volume of orders around is larger. Prices are steadier than for some time past. The position of the fine paper market is practically unchanged. Tissues are moving at a fair pace. The kraft paper situation is better and prices are more firmly established.

Mechanical Pulp

Steadiness prevails in the ground wood market. Although the prevailing demand is light, offerings of both domestic and imported mechanical pulp are limited and the industry is in a sound statistical position. Prices are generally holding to schedule and there is little talk of concessions around.

Chemical Pulp

While the chemical pulp market continues quiet, there have been no further price changes reported. Imported bleached sulphite is still offered at from $2.60 to $4.25, on dock, Atlantic ports, and easy bleaching at from $2.25 to $2.40. Domestic bleached sulphite is selling at $2.40 to $4.75, f.o.b. pulp mill, and easy bleaching at $2.55 to $2.75.

Old Rope and Bagging

Business in the old rope market is very dull at present. Demand for both domestic and foreign old manila rope is light. Small mixed rope is going forward in fair volume. Prices remain unchanged. The bagging market is irregular. Gunny bagging is steady to firm, scrap bagging spotty.

Rags

The domestic rag market shows little signs of improvement. Cotton rags are in limited request. Roofing grades are more active, due to seasonal causes. Mixed rags continue dull. Prices generally remain unchanged. Offerings of imported rags are quite sufficient to take care of current requirements. Prices are fairly steady.

Waste Paper

Board mills are displaying some interest in the lower grades of paper stock. Supplies are generally being quoted at previously recorded levels. Demand for the higher grades has fallen off slightly. No. 1 soft white shavings are now selling at from $2.20 to $2.30 and white envelope cuttings at from $2.60 to $2.70, f.o.b. New York.

Twine

Some improvement was noticed in the local twine market during the past week. Demand for several of the various grades was more persistent than of late. Supplies are moving into consumption in fairly heavy volume. Prices are steadier and reports of concessions are not so frequent.

International Reducing Indebtedness

BOSTON, Mass., April 25, 1931.—At the annual stockholders meeting of Internationl Paper and Power Company, A. R. Graustein, president, said that the $5 per ton price cut was made by the mills in Canada and that International Paper was not a party to the cut and has not yet taken any definite action with regard to it. However, it is the company's policy, Mr. Graustein said, to protect its customers against price cuts by the other large companies.

In reply to an inquiry as to what the effect upon earnings would be if International Paper should decide to meet the $5 per ton reduction in news print, Mr. Graustein said that without allowing for any stimulation of consumption by the lower price, the gross loss would be something under $3,500,000.

The chairman said that preliminary figures showed that the preferred dividend was not quite earned in the first three months, but the deficit was less than the surplus of the last three months of 1930; in other words, for the six months the preliminary figures indicate that the preferred dividend was earned. These figures, however, are all based on the price of news print as it was before the $5 cut. In view of the fact that the cut is made retroactive to January 1, International Paper may have to revise its accounts for the first quarter, and such a revision would result in the preferred dividend not having been earned for the six months.

Mr. Graustein said earnings statements do not fully reflect the extent to which the depression is affecting the company because of increases in the efficiency of the paper mills. Also, the Canadian power properties are reflecting more nearly their full earning capacity. They are making a much better showing than last year.

"The company's indebtedness to the banks has been reduced by $2,000,000 in the last few weeks. Excluding New England Power, which finances itself independently, the present bank debt is under $17,000,000.

"We expected to cut off $6,000,000 more by the end of July, and several million more by end of year," Mr. Graustein said. "If there had been no change in price of news print, we should have expected to see our bank debt at end of year reduced to not more than $5,000,000, or $10,000,000. Then, of course, we have plans for reducing bank debt by the sale of securities when conditions are favorable."

Stockholders reelected fourteen directors and added William N. Hurlburt, vice president. An amendment to the by-laws relating to the purchases of its own stocks was adopted. The company has sold upwards of $4,000,000 par value of its preferred to employes in five years, the stockholders were told.

Salesmen's Compensation

A helpful study of this subject will be sent to interested executives. Selling Costs, Sales Quotas, Expense Budgets, Application of Expense to Products, and Basing Pay on Profits are among points discussed.

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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, April 29, 1931.

BLANC FIXE.—Conditions in the blanc fixe market are unchanged. The contract movement is seasonal. Prices are steady. The pulp is quoted at from $42.50 to $45.00 per ton, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. Contract shipments are moving in good volume. Prices are holding to schedule. Bleaching powder is quoted at from $2.00 to $2.35 per 100 pounds, in drums, at works, according to grade and quantity.

CASEIN.—The casein market is easier. Domestic standard ground is now quoted at 7½ cents and finely ground at 8½ cents per pound. Argentine standard ground is selling at 9 cents and finely ground at 10 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Trading in the caustic soda market is moderately active. Shipments against contract are normal. Solid caustic soda is quoted at from $2.50 to $2.55, while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is in a fairly satisfactory position. Prices are generally holding to formerly quoted levels. Imported china clay is selling at from $13 to $21 per ton, while domestic paper making clay is offered at from $7 to $11 per ton, at mine.

CHLORINE.—Supplies of chlorine are going forward to the paper mills in good volume. Demand is fairly persistent. Prices are generally holding to previously quoted levels. Chlorine is selling at $2.50 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is steadier than for some time past. The grades of gum rosin used in the paper mills are quoted at from $5.95 to $6.25 per 280 pounds, in barrels, at yards. Wood rosin is selling at $4.40 per 280 pounds, in car lots, at southern shipping points.

SALT CAKE.—Demand for salt cake is fairly active. The contract movement is well up to average. Prices remain unchanged. Salt cake is quoted at from $16 to $17; German salt cake at from $15.50 to $16; and chrome salt cake at from $14 to $15 per ton, in bulk, at works.

SODA ASH.—Most of the business in the soda ash market is routine. Supplies are moving to the paper mills in fair volume. Contract quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.00; in bags, $1.15; and in barrels, $1.38.

STARCH.—The starch market continues to exhibit a steady trend. Contract shipments are going forward at a normal pace for the season. Prices remain unchanged. Special paper making starch is quoted at $2.67, in bags; and at $2.94 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Offerings of sulphate of alumina are about sufficient to take care of current requirements. Prices are steady. Commercial grades are still quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market pursues the even tenor of its way. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons or over, on yearly contracts; and at $20 per ton for any smaller quantity over that period. On spot and nearby car loads, the quotation is $21 per ton.

TALC.—Business in the talc market is moderately active. Contract shipments are going forward at a regular pace. Prices are steady. Domestic talc is quoted at from $16 to $18 per ton, in bulk; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper
(F. o. b. Mill)

Ledgers	11.00	@	38.00
Bonds	6.75	@	53.25
Writings—			
Extra Superfine	14.00	@	32.00
Superfine	14.00	@	32.00
Tub sized	10.00	@	15.00
Engine sized	6.75	@	11.00
Book, Cased—			
S. & S. C.	5.50	@	—
M. F.	5.25	@	—
Coated and Enamel	7.00	@	10.50
Lithograph	7.50	@	12.00
Tissues—Per Ream—			
White No. 1	.65	@	.67½
Anti-Tarnish M G only	.65	@	.70
Colored	.70	@	.90
White No. 2	.55	@	.57½
Kraft	.65	@	.70
Manila	.55	@	.57½
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¾	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¾	@	—
(Delivered New York)			
News, per ton—			
Rolls, contract	57.00	@	—
Rolls, spot	57.00	@	—
Sheets	62.00	@	—
Side Runs	42.00	@	46.00
Kraft—			
No. 1 Domestic	4.25	@	5.30
No. 2 Domestic	3.50	@	4.00
Southern	3.50	@	4.00
Imported	6.00	@	7.00
Boards—per ton—			
News	30.00	@	32.00
Straw	40.00	@	45.00
Chip	30.00	@	32.00
Binders' Boards	65.00	@	70.00
Standard 85 Test Liner	35.00	@	40.00
Sgl. Mla. Lt. Chip	40.00	@	45.00
(F. o. b. Mill)			
Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp
(On Dock)

No. 1 Imported—			
Moist	28.00	@	32.00
Dry	30.00	@	34.00
(F. o. b. Mill)			
No. 1 Domestic	28.00	@	34.00

Chemical Pulp
(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	2.60	@	4.25
Easy Bleaching	2.25	@	2.40
No. 1 strong unbleached	2.00	@	2.35
Mitscherlich unbleached	2.10	@	2.70
No. 2 strong unbleached	1.90	@	2.00
No. 1 Kraft	1.40	@	1.75
No. 2 Kraft	1.35	@	1.55
Sulphate—			
Bleached	2.75	@	3.25
(F. o. b. Pulp Mill)			
Sulphite (Domestic)—			
Bleached	2.40	@	4.75
Easy Bleaching	2.55	@	2.75
News	1.80	@	2.50
Mitscherlich	2.50	@	3.25
Kraft (Domestic)	1.60	@	2.75
Delivered Paper Mills)			
Soda Bleached	3.00	@	—

Domestic Rags
New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	7.50	@	8.00
New White, No. 2	6.50	@	7.00
Silesias No. 1	5.75	@	6.00
New Unbleached	8.00	@	8.50
New Blue Prints	4.50	@	5.00
New Soft Blacks	4.00	@	4.50
Blue Overall	5.50	@	6.00
Washables	3.75	@	4.00
Fancy	4.00	@	4.50
Mixed Khaki Cuttings	4.25	@	5.25
Pink Corset Cuttings	6.50	@	7.00
O. D. Khaki Cuttings	5.15	@	5.75
Men's Corduroy	3.00	@	3.50
New Mixed Blacks	3.00	@	3.25
Old Rags			
White, No. 1—			
Repacked	5.25	@	5.75
Miscellaneous	4.25	@	4.75
White, No. 2—			
Repacked	3.00	@	3.50
Miscellaneous	2.30	@	2.50
St. Soiled, White	1.50	@	1.75
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.65	@	1.85
Black Stockings	3.25	@	3.75
Roofing Rags—			
Cloth Strippings	1.25	@	1.30
No. 1	1.25	@	1.30
No. 2	.90	@	1.00
No. 3	.70	@	.80
No. 4	.65	@	.70
No. 5A	.50	@	.60

Foreign Rags
New Rags

New Dark Cuttings	2.00	@	2.15
New Mixed Cuttings	2.10	@	2.40
New Light Silesias	5.50	@	5.75
Light Flannelettes	6.25	@	6.75
Unbleached Cuttings	7.50	@	8.00
New White Cuttings	7.25	@	7.75
New Light Oxfords	5.50	@	5.75
New Light Prints	3.75	@	4.25
Old Rags			
No. 1 White Linens	7.00	@	7.50
No. 2 White Linens	5.50	@	6.00
No. 3 White Linens	4.00	@	4.50
No. 4 White Linens	2.50	@	3.00
No. 1 White Cotton	5.00	@	5.50
No. 2 White Cotton	4.00	@	4.50
No. 3 White Cotton	2.75	@	3.75
No. 4 White Cotton	1.60	@	1.75
Extra Light Prints	2.50	@	2.75
Ord. Light Prints	2.10	@	2.25
Med. Light Prints	1.65	@	1.75
Dutch Blue Cottons	1.90	@	2.10
French Blue Linens	2.65	@	2.75
German Blue Linens	2.25	@	2.40
German Blue Cottons	1.75	@	1.85
Checks and Blues	1.60	@	1.75
Lindsay Garments	1.10	@	1.20
Dark Cottons	.80	@	.90
Old Shopperies	.75	@	.80
New Shopperies	.75	@	.80
French Blues	1.80	@	1.90

Old Rope and Bagging
(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.65	@	1.80
Domestic	1.65	@	1.80
Wool Tares, light	1.30	@	1.40
Wool Tares, heavy	1.30	@	1.40
Bright Bagging	1.30	@	1.35
Small Mixed Rope	.90	@	1.00
Manila Rope—			
Foreign	2.05	@	2.25
Domestic	2.20	@	2.25
New Burlap Cut	2.10	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers
(F. o. b. New York)

Shavings—			
Hard, white, No. 1	2.75	@	2.85
Hard White, No. 2	2.20	@	2.30
Soft, white, No. 1	2.20	@	2.30
White envelope cuttings	2.60	@	2.70
Flat Stock—			
Stitchless	.85	@	.95
Overissue Mag.	.85	@	.95
Solid Flat Book	.75	@	.85
Crumpled No. 1	.60	@	.65
Solid Book Ledger	1.75	@	1.85
Ledger Stock	.80	@	.85
New B. B. Chips	.20	@	.30
Manilas—			
New Env. Cut	2.00	@	2.20
New Cuttings	1.50	@	1.65
Extra No. 1 old	1.20	@	1.30
Print	.50	@	.60
Bogus Wrapper	.50	@	.60
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.60	@	1.70
Strictly Overissue	.40	@	.45
Strictly Folded	.30	@	.35
No. 1 Mixed Paper	.15	@	.25
Common Paper			Nominal

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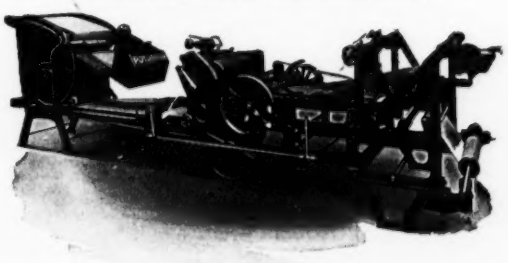

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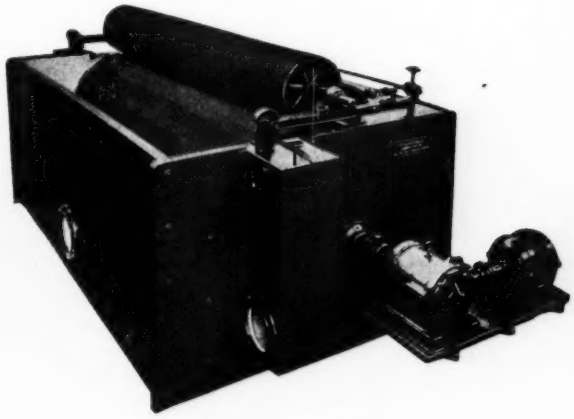

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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.32	@	.34
No. 1	.22	@	.24
No. 2	.21	@	.22
No. 3	.19	@	.20
A. Italian, 18 basis	.38	@	.39
Finished Jute—			
Dark 18 basis	.20½	@	.21
Light 18 basis	.22½	@	—
Jute Wrapping, 3-6 Ply—			
No. 1	.14¾	@	—
No. 2	.13¾	@	—
Tube Rope—			
4-ply and larger	.10¾	@	—
Fine Tube Rope—			
4-ply	.12¾	@	—
3-ply	.13¾	@	—
2-ply	.14¾	@	—
Paper Makers Twine			
Balls	.08¾	@	—
Box Twine, 2-3 ply	.09	@	.10
Jute Rope	.11	@	.12
Amer. Hemp, 6	.29	@	.31
Java Sisal			
No. 1 Basis	.12	@	—
No. 2 Basis	.11¾	@	—
New Zealand Sisal	.11½	@	—
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Twine	.22½	@	.24½

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¾
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05½	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¾	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	5.00	@	5.50
Southern Kraft	3.75	@	4.00
No. 2 Kraft	3.75	@	4.00
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.35	@	2.40
White Env. Cuttings	—	@	—
No. 1 Soft Shavings	2.10	@	2.15
Ledger & Writings	.70	@	.75
Solid Books	.75	@	.80
Blanks	1.60	@	1.65
Krafts	1.25	@	1.35
New Kraft Cuts	1.35	@	1.45
Manila Env. Cuts	1.50	@	1.55
Ex. No. 1 Manila	1.25	@	1.30
Print Manila	.40	@	.45
Overissue News	.40	@	.45
Old Newspapers—			
No. 1	.35	@	.40
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.28	@	.30
No. 2	.20	@	.25
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.05	@	.40
Ledgers	.07	@	.40
Writings—			
Superfine	.12	@	.18
Extra fine	.16	@	.22
Fine	.15	@	.26
Fine, No. 2	.13½	@	.25
Fine, No. 3	.08½	@	.20
Book, M. F.	.05	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.08	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.07	@	.09
Manila Sul., No. 1	.03¼	@	.05½
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03½	@	.04
Southern Kraft No. 1	—	@	.03¼
Southern Kraft No. 2	—	@	.03½
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	50.00	@	—
News Board	32.50	@	—
Chip Board	30.00	@	—
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00	@	—
No. 2, per ton	68.00	@	—
Carload lots	66.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.07	@	.08
New White, No. 2	.06	@	.06½
Light Silesias	.05½	@	.06
Silesias, No. 1	.07	@	.09
Black Silesias, soft	.05	@	—
New Unbleached	.07½	@	.08
Washable, No. 1	.03½	@	.04
Blue Overall	.06	@	—
Cottons—According to grades—			
Washable, No. 2	.02½	@	.03
New Blue	.02½	@	.03
Fancy	.04	@	—
New Black Soft	.04	@	.05
New Light Seconds	.02	@	.02½
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05	@	—
No. 2 Mixed	.04	@	.04¼
Corduroy	.02½	@	.03
New Canvas	.07½	@	.08
New Black Mixed.	.03	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	3.50	@	4.00
Miscellaneous	3.00	@	3.50
M. G.	5.00	@	—
Thirds and Blues—			
Miscellaneous	1.50	@	1.75
Repacked	2.00	@	2.25
Black Stockings (Export)	3.80	@	4.00
Roofing Stock—			
Foreign No. 1	1.15	@	1.25
Repacked	.80	@	.90

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	2.75	@	3.00
Sisal Rope	1.25	@	1.50
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.60	@	2.65
No. 2 Hard White	2.30	@	2.35
No. 1 Soft White	2.25	@	2.50
No. 2 Soft White	1.40	@	1.60
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.60	@	.70
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.05	@	1.25
No. 1 Books, heavy	1.00	@	1.15
No. 2 Books, light	.90	@	.95
No. 1 New Manila	2.15	@	2.30
No. 1 Old Manila	1.50	@	1.60
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.25	@	1.30
Common Paper	.25	@	.30
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.35	@	.40
Binders Board, Chip	.35	@	.45
Corrugated Board	.50	@	.60
Overissue News	.40	@	.45
Old Newspaper	.25	@	.30

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12½
Rag Content	.15	@	.30
All Rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	0.3½	@	.04¼
(F. o b. Boston)			
Southern Kraft	.03½	@	.03¾
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print, rolls	61.50	@	—
Straw Board, rolls.009	—	@	52.50
Straw Board in Sheets, basis 35s to 70s	—	@	50.00
Filled News Board	32.50	@	—
Chip Board	30.00	@	—
Chip Board (Creasing)	32.50	@	—
Single Manila Lined Chip	45.00	@	—
Single White, Patent Coated News Board			
Bender, No. 1	60.00	@	75.00
Bender, No. 2	55.00	@	65.00
Wood Pulp Board	75.00	@	80.00
Binder Boards	67.50	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.25	@	2.40
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.60	@	.65
Solid Ledger Books	1.75	@	2.00
Overissue Ledger Stock	1.35	@	1.60
Mixed Ledgers	1.15	@	1.30
No. 1 Books, heavy	.75	@	.90
No. 1 Books, light	.55	@	.70
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.85	@	2.00
No. 1 Old Manila	—	@	1.00
White Blank News	1.50	@	1.60
Kraft No. 1	—	@	1.10
Manila	.80	@	.90
No. 1 Mixed Paper	—	@	.16
Overissue News	—	@	.40
Old Newspapers	.25	@	.30
Box Board, Chip	.16	@	.20
Corrugated Boxes	.35	@	.40

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.80
Domestic	1.60	@	1.70
Manila Rope—			
Foreign	—	@	2.00
Domestic	2.50	@	—
Transmission Rope	1.75	@	—
Mixed Strings	—	@	.70
Jute Rope	1.25	@	—
Jute Carpet Threads	.90	@	1.05
Bleachery Burlap	—	@	3.25
No. 1 Scrap Burlap	—	@	1.25
Scrap Sisal	1.35	@	1.40
Scrap Sisal for shredding	—	@	1.50
Wool Tares, heavy	1.30	@	—
New Burlap Cutting	1.75	@	2.00
Australian Pouches	2.50	@	—
Heavy Baling Bagging	—	@	1.75
Paper Mill Bagging	—	@	.85
Bagging No. 2	.50	@	—
No. 1 Burlap	—	@	3.50

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.06½	@	.07
New White No. 2	—	@	.06
Silesias No. 1	.06	@	.06¼
New Brack Silesias	.02½	@	.02¾
New Unbleached	—	@	.08
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.05	@	.06
New Black, soft	.04	@	.04¾
Khaki Cuttings	.04	@	.04¾
O. D. Khaki	.04½	@	.05
Corduroy	.03	@	.03½
New Canvas	.08	@	.08¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03¼	@	.04
Twos and Blues	2.50	@	2.75
Thirds and Blues—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	.75	@	.80
No. 2	.65	@	.70
No. 3	.50	@	.60

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.75	@	.85
New No. 1 White Shirt Cuttings	7.75	@	8.00
Dutch Blues	—	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	1.65	@	1.75
Old Linsey Garments	.85	@	.95

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.09¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.09½	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.12½	@	7.60
No. 2 M. F. (carloads)	6.90	@	7.35
No. 3 M. F. (carloads)	6.65	@	7.15
No. 1 S. C. (carloads	7.60	@	8.10
No. 2 S. C. (carloads	7.35	@	7.85
No. 3 S. C. (carloads	7.12½	@	7.60
No. 4 S. C. (carloads	5.95	@	6.40
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft No. 2	5.40	@	—
(Delivered Toronto)			
News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	50.00	@	—
Sulphite, news grade	70.00	@	—
Sulphite, bleached	72.50	@	75.00
Sulphate	60.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.80	@	—
Soft White	2.60	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.10	@	—
Light and Crumpled Book Stock	1.20	@	—
Ledgers and Writings	—	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.80	@	—
Kraft	1.90	@	—
News and Scrap—			
Strictly Overissue	.70	@	—
Strictly Folded	.70	@	—
No. 1 Mixed Paper	.60	@	—

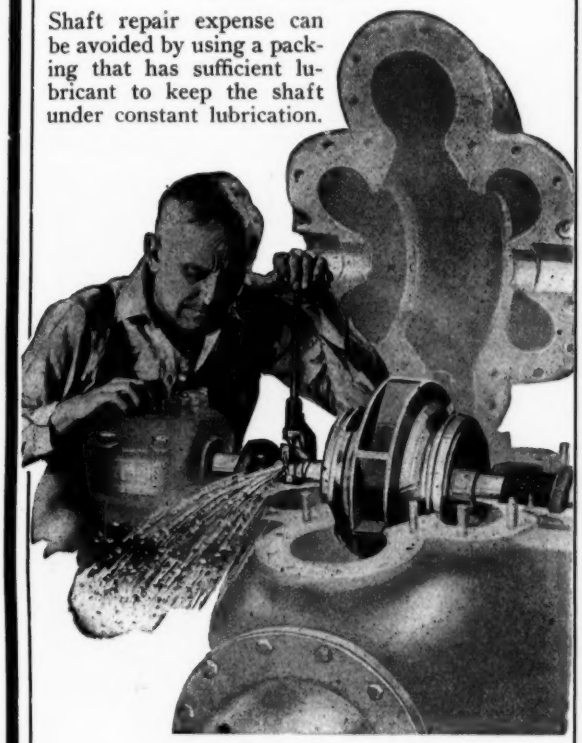
Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

Some Packings Wear the Shaft Like a Pipe Cutter

Friction Caused by Unlubricated Packings Will Destroy the Shaft

Shaft repair expense can be avoided by using a packing that has sufficient lubricant to keep the shaft under constant lubrication.



For CAUSTIC SODA and SIMILAR CHEMICALS use

CUTNO PACKING

It carries in each separate strand, a lubricant that resists the washing-out tendency of solutions of Caustic Soda and similar Chemicals. "CUTNO" holds its lubricant for lubricating purposes.

Flax Packing Ruined This Shaft

Let us send you free working sample of "Cutno" for practical test. State size of packing used.

FOR STEAM USE PALMETTO

GREENE, TWEED & CO.

Sole Manufacturers

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PAPER TRADE JOURNAL

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The white pigment of highest known opacity value. Technically it is the whitest and brightest of all white pigments.

It has the highest hiding power and tinting strength and the greatest resistance to chemical change of any known white opaque pigment.

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RODO—

We have developed for the paper industry several water soluble perfumes which may be easily and effectively applied either during the manufacturing or the converting process.

One grade is a deodorant to neutralize unpleasant odors.

Several grades to impart various pleasant scents.

We shall be glad to submit samples with full instructions as to their use.

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